TRANSPORTATION OPERATIONAL PERSONAL PROPERTY STANDARD SYSTEM (TOPS)

TOPS ADMINISTRATOR'S MAINTENANCE GUIDE FOR INTEL SYSTEMS

TOPS VERSION ICP-9.5

June 19, 2003

Prepared for the
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TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

SECTION 1. INTRODUCTION

1.1 PURPOSE

The purpose of this guide is to provide an information source for the Transportation Operational Personal Property Standard System (TOPS) System Administrators (TAs), technical personnel, and other interested personnel in the administration of the TOPS system. This document provides information about the TOPS Intel servers. It also provides instructions and procedures for the TA System Administration Module (TADMIN), which is a menu driven software application that allows the TA to administer the TOPS System using menus.

1.2 MISSION

The mission of TOPS is to provide a multi-service, standardized personal property Management Information System (MIS) for the Department of Defense (DoD). The evolution of the automated TOPS is intended to reduce the manual administrative workload associated with preparation, control, and distribution of documents and maintenance of registers, rosters, and files relating to personal property activities. The standardization of TOPS improves the coordination and control of personal property movement and storage procedures at the lowest possible cost and enhances the management control and quality of personal property information.

1.3 DOCUMENT OVERVIEW

This document is structured as follows:

- Section 1 provides the purpose of this document, the mission of TOPS and referenced documents.
- Section 2 provides an overview of the Intel server hardware and software.
- Section 3 provides information and instructions for using the TADMIN menus.
- Section 4 provides information on using the TOPS Data Archiving System.
- Section 5 provides information on exporting and importing TOPS data.
- Section 6 provides information on creating TOPS tables and column listings.
- Section 7 provides procedures for using the TOPS Orphans Removal Software.
- Section 8 provides procedures for executing the TOPS shell script to spool and delete old rate records from TOPS database tables.
- Section 9 provides troubleshooting techniques using SQL*Plus.
- Section 10 provides system restoration procedures.

- Section 11 provides modem maintenance information.
- Section 12 provides information on routers.
- Appendix A contains a list of acronyms.
- Appendix B provides TOPS functional mapping information.
- Appendix C provides *vedit* commands.

1.4 REFERENCE DOCUMENTS

- Revised ICP 5.6.3 Archival, TOPS Data Archiving Subsystem (TDAS), Software User Manual (SUM), August 4, 1998, DCN 1666047-000-044.
- TOPS Administrator's Security Guide, Revised, Incremental Change Package ICP Version 6.2.1, September 8, 1999, DCN 1666047-000-097.
- TOPS Incremental Change Package ICP Version 9.4 Intel Installation Guide, August 13, 2002, DCN 20390002-305-068-rev1

1.5 LEGEND

Throughout this manual, the following will apply:

- System responses indicated by {SYS}
- TA actions indicated by {TA}
- Substitution variables inserted within the { } brackets.

SECTION 2. THE INTEL SYSTEM

2.1 SYSTEM HARDWARE

The TOPS fielded INTEL system consists of:

- One - Intel Pentium III 600 megahertz (MHz) central processing unit (CPU) with 256 kilobyte (KB) cache
- One - CTX 14" Monitor
- One - Personal System/2 (PS/2) board
- One - PS/2 Intellimouse
- One 3.5" 1.44 Megabyte (MB) floppy drive
- 512 MB PC-100 Random Access Memory (RAM)
- Three - Seagate Small Computer System Interface (SCSI) hard drives
- Two - Adaptec AHA-2940AU Single Channel SCSI Controllers
- One - TEAC 32X SCSI Compact Disk Read Only Memory (CD-ROM) Drive
- One - ATI 8 MB Accelerated Graphic Port (AGP) Video Controller
- One - Seagate 4-8 Gigabyte (GB) Digital Audio Tape (DAT) Backup Drive
- One - Intel Ethernet Network Interface Card (NIC).

2.2 SYSTEM SOFTWARE

- Sun Microsystems Solaris 8 x86 Platform Edition, 4/01
- Oracle Relational Database Management System (RDBMS) 7.1.4.1
- Oracle SQL*Net, Version 8.1.7.0.0
- Oracle PL/SQL, Version 2.1.40.0
- Oracle SQL*Plus, Version 3.1.3.5.1
- Oracle Server Manager, Version 2.0.3
- Oracle Forms, Version 3.0.16.12.9
- Oracle Report Writer, Version 1.1.10.3.1
- TOPS Application Software, Version 9.5
- OpenSSH, Version 3.6.1p1
- TCP wrapper, version 7.6
- Crack, version 5.0
- Java 2 Runtime Environment 1.4.1_01.

2.3 SYSTEM BUILD INFO

2.3.1 COMPLIMENTARY METAL OXIDE SEMICONDUCTOR (CMOS) SETTINGS

Use default settings except for Initial Display Mode/Advanced CMOS Setup; set to Basic Input Output System (BIOS). See Section 2.3.3 to check or setup initial configuration.

2.3.2 SCSI BIOS SETTINGS

SCSI in Peripheral Component Interconnect (PCI) Slot 2 Bus Device 00:02h

- Use default settings.

SCSI in PCI Slot 4 Bus Device 00:04h

- Disable the SCSI BIOS.

2.3.2.1 SCSI ADAPTER CONFIGURATION

- SCSI Adapter in PCI Slot 2 Bus Device 00:02h
- SCSI ID: 0SEAGATE ST39216N - Hard Disk 0
- SCSI ID: 4ARCHIVE Python 04687-XXX - Tape Drive
- SCSI ID: 6Teac 32X SCSI CDROM
- SCSI BIOS Installed

SCSI Adapter in PCI Slot 4 Bus Device 00:04h

- SCSI ID: 0SEAGATE ST39216N
- SCSI ID: 1SEAGATE ST39216N
- SCSI BIOS not Installed

2.3.3 CHECK SCSI BIOS FOR INTEL SERVER INITIAL CONFIGURATION

The Intel Server Manufacturer should have completed the following steps. Perform the following steps **ONLY** if running into system boot-up problems or if replacing a SCSI Adapter/Device. You must coordinate with the MTMC's Service Response Center (MSRC) at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

```
Power on system

[Ctrl-A] during the initial system boot-up
```

After a few seconds, the system will display the Adaptec SCSI BIOS Configuration screen.

[ENTER] to enter setup mode for the first SCSI Adapter at Bus:Device address 00:02h

2.3.3.1 CONFIGURE HOST ADAPTER SETTINGS

[ENTER] to select *Configure/View host adapter settings*
[ENTER] to select *Host Adapter SCSI ID*
[Up/Down ARROW-KEY] to select *7*
[ENTER]
[DOWN ARROW-KEY] to select *SCSI Parity Checking*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *Host Adapter SCSI Termination*
[ENTER]
[Up/Down ARROW-KEY] to select *Automatic*
[ENTER]
[Down ARROW-KEY] to select *Boot Device Options*
[ENTER]
[ENTER] to select *Boot SCSI ID*
[ENTER]
[Up/Down ARROW-KEY] to select *0*
[ENTER]
[Down ARROW-KEY] to select *Boot LUN Number*
[ENTER]
[Up/Down ARROW-KEY] to select *0*
[ENTER]
[ESC]
[Down ARROW-KEY] to select *SCSI Device Configuration*
[ENTER]
[ENTER] to select *Initiate Sync Negotiation* for SCSI ID #0
[ENTER]
[Up/Down ARROW-KEY] to select *Yes*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above.
Repeat the last step for all **SCSI ID#s**
[Down/Left ARROW-KEY] to select *Maximum Sync Transfer Rate* for SCSI ID#0
[ENTER]
[Up/Down ARROW-KEY] to select *20.0*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above
Repeat the last step for all **SCSI ID#s**
[Down/Left ARROW-KEY] to select *Enable Disconnection* for SCSI ID#0
[ENTER]
[Up/Down ARROW-KEY] to select *Yes*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above
Repeat the last step for all **SCSI ID#s**
[Down/Left ARROW-KEY] to select *Send Start Unit Command* for SCSI ID#0
[ENTER]
[Up/Down ARROW-KEY] to select *no*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above

Repeat the last step for all **SCSI ID#s**
[Down/Left ARROW-KEY] to select *BIOS Multiple LUN Support* for SCSI ID#0
[ENTER]
[Up/Down ARROW-KEY] to select *no*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above
Repeat the last step for all **SCSI ID#s**
[Down/Left ARROW-KEY] to select *Include in BIOS Scan* for SCSI ID#0
[ENTER]
[Up/Down ARROW-KEY] to select *Yes*
[ENTER]
[Right ARROW-KEY] to move to the next SCSI ID# and repeat the last 3 steps above
Repeat the last step for all **SCSI ID#s**
[ESC]
[Down ARROW-KEY] to select *Advanced Configuration Options*
[ENTER]
[ENTER] to select *Plug and Play SCAM Support*
[Up/Down ARROW-KEY] to select *Disabled*
[ENTER]
[Down ARROW-KEY] to select *Reset SCSI Bus at IC Initialization*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *Extended BIOS Translation* for DOS Drives > 1 Gbyte
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *Host Adapter BIOS*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *Support Removable Disks under BIOS as Fixed Disks*
[ENTER]
[Up/Down ARROW-KEY] to select *Boot Only*
[ENTER]
[Down ARROW-KEY] to select *Display <Ctrl><A> Message During BIOS Initialization*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *BIOS Support for Bootable CD-ROM*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[Down ARROW-KEY] to select *BIOS Support for Int13 Extensions*
[ENTER]
[Up/Down ARROW-KEY] to select *Enabled*
[ENTER]
[ESC]

2.3.3.2 SCSI DISK UTILITIES

Follow the instructions below to enter the SCSI Disk Utilities.

[Down ARROW-KEY] to select *SCSI Disk Utilities*

[ENTER]

After a few seconds, the system will list all the SCSI Devices attached to the SCSI Adapter at Bus: Device address 00:02h.

For a baseline TOPS Intel server, the SCSI device list for the first SCSI Adapter will be as follows:

```
SCSI ID #0: SEAGATE ST39216N
SCSI ID #1: no device
SCSI ID #2: no device
SCSI ID #3: no device
SCSI ID #4: ARCHIVE Python 04687-XXX
SCSI ID #5: no device
SCSI ID #6: TEAC  CD-ROM CD-532S
SCSI ID #7: AHA-2940AU
```

NOTE: After a SCSI Adapter/device replacement, the list above may be different. However, the SCSI ID# to device mapping must remain same for the TOPS system operation.

[ESC] twice

The main SCSI configuration screen, "**Configure Host Adapter Settings**", is displayed. Follow the instructions below to configure a second host adapter.

[Down ARROW-KEY] to select the second SCSI Adapter at Bus: Device address 00:04h

[ENTER]

Follow the instructions, "**SCSI Disk Utilities**", to view the **SCSI ID#s** to SCSI device mapping for the second host adapter.

For baseline TOPS system, the SCSI ID map for the second host adapter will be as follows:

```
SCSI ID #0: SEAGATE ST39216N
SCSI ID #1: SEAGATE ST39216N
SCSI ID #2: no device
SCSI ID #3: no device
SCSI ID #4: no device
SCSI ID #5: no device
SCSI ID #6: no device
SCSI ID #7: AHA-2940AU
```

NOTE: After a SCSI Adapter/device replacement, the list above may be different. However, the SCSI ID# to device mapping must remain the same for the TOPS operation system.

SCSI Adapter settings are now complete for both adapters. Perform the following steps to continue rebooting the system.

[ESC] three times and the menu for *Exit Utility* is displayed

[Up/Down ARROW-KEY] to select *Yes*

[ENTER] twice to continue to reboot

If the system will not boot-up, call the MSRC at 1-800-331-7348, 703-428-3230 or 703-428-3314, DSN 328.

2.3.4 CHECK SYSTEM BIOS FOR INTEL SERVER INITIAL CONFIGURATION

The Intel Server Manufacturer should have completed the following steps. Perform the following steps **ONLY** if system boot-up problems are occurring and have checked with the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

Power on system
[DELETE] during the initial system boot-up

The system will continue to boot up. After the Adaptec SCSI BIOS Configuration, the system will enter setup mode.

[Right ARROW-KEY] move to Exit
[Down ARROW-KEY] to Load Failsafe Defaults
[ENTER]
[ENTER] for Ok
[Left ARROW-KEY] over to Advanced
[Down ARROW-KEY] to IDE Configuration
[ENTER]
Select Onboard PCI IDE Controller
[ENTER]
Select Disabled
[ENTER]
[ESC] to exit IDE Configuration
[Down ARROW-KEY] to Boot Settings Configuration
[ENTER]
Select Quick Boot
[ENTER]
Select Enabled
[ENTER]
Select Quiet Boot
[ENTER]
Select Disabled
[ENTER]
[ESC] to exit Boot Settings Configuration
[Down ARROW-KEY] to Peripheral Device Configuration
[ENTER]
Select Onboard SCSI

```
[ENTER]
Select Disabled
[ENTER]
[ESC] to exit Peripheral Device Configuration
[Right ARROW-KEY] over to PCIPnP
Select Allocate IRQ to PCI VGA
[ENTER]
Select no
[ENTER]
[Right ARROW-KEY] over to Exit
Select Exit Saving Changes
[ENTER]
[ENTER] for Ok
```

System will reboot.

2.4 DISK PARTITIONS

2.4.1 INITIAL DISK FILE SYSTEM LAYOUT

The initial disk file systems partitioning and space allocations are as shown in Figure 2-1.

```
File System and Disk Layout:
/                       c0t0d0s0          4365 MB
/opt                    c1t0d0s0          4000 MB
/backup                 c1t1d0s0          8245 MB
swap                    c1t1d0s1          512MB
```

Figure 2-1: Intel System – Initial Disk Partition

```
Filesystem             kbytes    used   avail capacity  Mounted on

/dev/dsk/c0t0d0s0    4399021 1038213 3316818    24%    /
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
/dev/dsk/c1t1d0s0    8310252 2623095 5604055    32%    /backup
/dev/dsk/c1t0d0s0    4031285 1601031 2389942    41%    /opt
```

Figure 2-2: Intel System – Current Disk Partition and Disk Usage

SECTION 3. TOPS TA SYSTEM ADMINISTRATION MENUS

3.1 INTRODUCTION

The TOPS *TA System Administration Menu* is a menu driven application used to perform user, mail, backup, printer, system, and security maintenance procedures. The TA has the ability to select processes from the menu screens to administer the TOPS system on a daily basis.

3.1.1 LOGIN AND ACCESS TO TA MENUS

To login and access the *TA System Administration Main Menu*, the TA can log onto the system from the system console as *root* or from a workstation as the *v7ora* user, and switch user (*su)* to the *tadmin* user.

```
At the console:
{SYS} GBLOC login:

{TA}  root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]

{SYS} root@gbloc>

{TA}  su – tadmin [ENTER]


At a workstation:

{SYS} GBLOC login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – tadmin [ENTER]

{TA}  {tadmin password} [ENTER]
```

The TA System Administration Main Menu screen is displayed.

```
*************************************************************************
*                                                                       *
*                    TA SYSTEM ADMINISTRATION MAIN MENU                 *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  USER MAINTENANCE                                           *
*        2.  MAIL MAINTENANCE                                           *
*        3.  BACKUP MAINTENANCE                                         *
*        4.  PRINTER MAINTENANCE                                        *
*        5.  CHECK/KILL PROCESS OR USER ID                              *
*            OR REBOOT/SHUTDOWN DBMS OR SYSTEM                          *
*        6.  SECURITY                                                   *
*        7.  EXIT                                                       *
*                                                                       *
*                                                                       *
*************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:
```

Figure 3-1: System Administration Main Menu

The menu shows the option sequence of *User Maintenance*, *Mail Maintenance*, and other menu driven maintenance processes options. Because of the importance of reading the mail and checking the backups on a daily basis, these menu options will be described first.

Menu option 1, *User Maintenance,* is covered in Section 3.4.

3.2 MAIL MAINTENANCE

This process provides the ability to read, save, and delete mail for the *root, v7ora* and *admin,* and *tomail* users. In addition to the features that are viewed on the *TA Mail Maintenance Screen,* a CRON background process will automatically delete saved mail older than seven calendar days from the TA Mail directory. However, if the mail is not saved, it will continue to grow larger and larger resulting in an unmanageable file size and degradation in system performance. By saving the mail, it cleans up the users' mailboxes. The saved mail is placed in files in the */export/home/acct/tamail* directory that are cleaned up by the automatic deletion feature every seven days. To keep the mail for longer periods, print it. The *TA System Administration Main Menu* features also allow for printing the mail.

3.2.1 READ MAIL

Select option 2**,** *Mail Maintenance,* from the *TA System Administration Main Menu*. Begin each workday by reading the mail for *root, v7ora, admin,* and *tomail*. To do this, access the *TA Mail*

Maintenance Screen displayed in Figure 3-2.

```
*****************************************************************************
*                                                                           *
*                           MAIL MAINTENANCE MENU                           *
*                                                                           *
*                      PLEASE CHOOSE ONE OF THE FOLLOWING                   *
*                                                                           *
*         1.  READ THE MAIL                                                 *
*         2.  SAVE THE MAIL                                                 *
*         3.  PRINT THE MAIL                                                *
*         4.  EXIT                                                          *
*                                                                           *
*****************************************************************************

Enter a number - 1, 2, 3, OR 4 - from the menu above:
```

Figure 3-2: Mail Maintenance Screen

To read the mail, select option 1 from the *Mail Maintenance Menu* and press **[ENTER]**. The mailbox directories are displayed.

```
{SYS}
Which mailbox would you like to read?
    1 - /var/mail            2 - /export/home/acct/tamail
Enter a number 1 or 2:
```

TADMIN mail maintenance administers *root, v7ora, admin,* and *tomail* mailboxes. The */var/mail* directory contains the mailboxes with unsaved mail. The */export/home/acct/tamail* directory contains the saved mail files.

3.2.1.1 READING NEW/UNSAVED MAIL

Select option 1, from the *Mail Maintenance Menu* and press **[ENTER]**. The system will display a similar message:

```
{SYS}
/var/mail directory listing:
-rw-r--r--   1 admin    admin       4222 Nov  1 11:35 admin
-rw-r--r--   1 root     sys            0 Nov  1 10:58 root
-rw-rw----   1 tomail   mail           0 Jul  6 12:51 tomail
-rw-r--r--   1 v7ora    dba            0 Nov  1 10:58 v7ora

You can page through any file that shows nonzero bytes.

Enter a number: 1 - root, 2 - tomail, 3 - v7ora, 4 - admin
{TA}  {mailbox number} [ENTER]

{TA}  To page through the mail file [ENTER]

{TA}  To stop paging q [ENTER]
```

To exit this feature, press **[ENTER]**. The *Mail Maintenance Menu* is displayed.

3.2.1.2 READING SAVED MAIL

All saved mail for each user is saved as a list file in the */export/home/acct/tamail* directory. To read previously saved mail, select option 1, from the *Mail Maintenance Menu* then select mailbox option 2, and then press **[ENTER]**. A similar listing is displayed:

```
{SYS}
/export/home/acct/tamail directory listing:
-rw-rw----   1 admin    mail      121972 Nov  1 10:04 admin.11011057
-rw-r--r--   1 admin    admin       4222 Nov  1 11:35 admin.11011141
-rw-r--r--   1 root     other         63 Nov  1 05:00 mailstat.11011057
-rw-rw----   1 root     mail      109924 Nov  1 06:00 root.11011057
-rw-rw----   1 v7ora    mail       14121 Nov  1 05:00 v7ora.11011057

You can page through any file that shows nonzero bytes.

Enter the entire filename to be displayed:
```

Enter the entire file name for the mail file you wish to read e.g. v7ora.11011057 to read the v7ora mail saved on November 1, 2001 at 10:57, and press **[ENTER]**. Press **[ENTER]** to read the saved mail file. To stop paging, type **q** and press **[ENTER]**. To exit this feature, press **[ENTER].** The *Mail Maintenance Menu* is displayed.

NOTE: Wild card characters cannot be used**.**

3.2.2 SAVE MAIL DAILY

Every workday, the TA is expected to save the mail for *root, v7ora, admin,* and *tomail.* The saved mail is retained by the system for seven calendar days. If there is something of importance in the mail, it needs to be dealt with within seven days after it is or it will be deleted by the system automatically.

```
*************************************************************************
*                                                                       *
*                          MAIL MAINTENANCE MENU                        *
*                                                                       *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                       *
*        1.  READ THE MAIL                                              *
*        2.  SAVE THE MAIL                                              *
*        3.  PRINT THE MAIL                                             *
*        4.  EXIT                                                       *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, OR 4 - from the menu above:
```

Figure 3-3: Mail Maintenance Screen

Select option 2 from the *Mail Maintenance Menu* to save the mail. When the mail for *root*, *admin*, *v7ora*, and *tomail* are saved, the time stamp, MMDDHHMM, will be concatenated to the name of the user's mail file, separated by a period, i.e. root**.**10240800. If there is mail to be saved, the system will display the following message:

```
{SYS}
Saved Mail will end with the month, day, hour and minute.
New mail files must have non-zero length to be saved.
Mail files currently in the /var/mail directory are below:

-rw-rw----   1 admin    mail      121972 Nov  1 10:04 admin
-rw-rw----   1 root     mail      109924 Nov  1 06:00 root
-rw-rw----   1 tomail   mail           0 Jul  6 12:51 tomail
-rw-rw----   1 v7ora    mail       14121 Nov  1 05:00 v7ora

Now saving /var/mail files into /export/home/acct/tamail!

Page through the file list in the TAMAIL mailbox.

-rw-rw----   1 admin    mail      121972 Nov  1 10:04 admin.11011057
-rw-r--r--   1 root     other         63 Nov  1 05:00 mailstat.11011057
-rw-rw----   1 root     mail      109924 Nov  1 06:00 root.11011057
-rw-rw----   1 v7ora    mail       14121 Nov  1 05:00 v7ora.11011057
(EOF):
```

After viewing the saved mail, exit the screen by pressing **[ENTER].** The *Mail Maintenance Menu* displayed. To read the saved mail, see Section 3.2.1.2 for instructions. Select option 1 and select mailbox 2 to read the saved mail under the */export/home/acct/tamail* directory.

3.2.3 PRINT MAIL FILES

There are times when the TA needs to print the mail in order to troubleshoot problems or disseminate information to others within the site. To print mail from the *Mail Maintenance Menu*, select option 3. The following is displayed:

```
{SYS}
If you want to print current mail, then save it first!
Which printer would you like to use to print the mail?

SRARPT   TOPSRPT    TACLASS   taclass1    reports1

For example, reports1

{TA}  {printername} [ENTER]

{SYS} You have selected printer -  {printername}

Here is the file list for the TAMAIL mailbox.
```

```
total 1102
-rw-rw----   1 admin    mail      121972 Nov  1 10:04 admin.11011057
-rw-r--r--   1 root     other         63 Nov  1 05:00 mailstat.11011057
-rw-rw----   1 root     mail      109924 Nov  1 06:00 root.11011057
-rw-rw----   1 v7ora    mail       14121 Nov  1 05:00 v7ora.11011057

Which files in the TAMAIL mailbox would you like to print?
You can enter up to four file names on the input line (no commas).
For example, mailstat.11111111 root.11111111 v7ora.11111111

{TA}  {filename} [ENTER]
```

The file is sent to the selected printer and the *Mail Maintenance Menu* is displayed.

3.3 BACKUP MAINTENANCE

Backup maintenance is necessary to preserve system information and data in the event a system problem resulting in the loss of data and the need to restore it. The backup of the system information and data is normally written to tape for preservation automatically. Two backups are executed daily via scripts at TOPS sites. These scripts execute at 1200 and 2000 hours Monday through Friday. A daily backup is executed on Saturday at 2000. The backup scripts use the *cpio* command to write to tape and *cpio* command to read the tape back into the system. The daily backups include the backup of critical files, listed in Table 3-1, on disk, database export, and a copy to tape.

Table 3-1: Critical File List

```
Files:
/kernel/drv/st.conf
/etc/rc2.d/S99routes
/etc/rc2.d/S99ping
/.profile
/etc/passwd
/etc/shadow
/etc/system
/etc/group
/etc/ethers
/etc/remote
/etc/vfstab
/etc/printers.conf
/etc/hostname.*
/etc/defaultrouter
/etc/nodename
/etc/inet/hosts
/etc/hosts.deny
/etc/inet/netmasks
/etc/inet/inetd.conf
/etc/inet/services
/etc/uucp/Systems
/etc/uucp/Permissions
/etc/uucp/Devices
```

```
/etc/uucp/Dialers
/etc/mail/sendmail.cf
/opt/v7ora/dbs/initT.ora
/opt/v7ora/dbs/initT_0.ora
/var/opt/oracle/listener.ora
/var/opt/oracle/tnsnames.ora
/var/opt/oracle/sqlnet.ora
/opt/tops/whist/whist_timestamp
/opt/tops/taqm/maild.log
Directories:
/var/spool/cron/crontabs/*
/usr/lib/lp/model/
/etc/saf/*
/var/saf/*
/var/mail/*
/var/spool/mqueue/*
/var/adm/taqm/*
/etc/lp/*
/var/spool/uucppublic/*
/opt/tops/gbl/output/*
```

3.3.1 BACKUP PREPARATION

It is essential that each site have twenty-five 4 mm 120-meter tapes for backup purposes. Ten tapes are used for the ten daily backups during the week. Five tapes should be allocated for the Daily backup on Saturdays. Five tapes should also be allocated for TDAS. The remaining five tapes are used for other miscellaneous tasks or as replacements.

The TA will keep a week's generation of tapes for each noon and night backup. For example, Monday's backups will need two tapes. Use one tape for the 1200 hours backup and another one for the 2000 hours backup. Then on the following Monday, use the previous Monday's tapes over, and so on for the rest of the week.

Place labels on each of the tapes. Record the day of the week, the time, and which backup is on the tape (i.e., Monday, 1200 hrs noon Backup.)

The TA will keep a month’s generation of tapes for each Saturday daily backup. Place labels on each of the tapes. Record the Saturday of the month and that it is a daily backup. (i.e., 3rd Saturday, daily Backup)

After the backups are successfully completed, the tape will automatically eject with the exception of the Friday evening 2000 backup. If the tape is **not** changed during the day on Saturday, the daily backup will run at 2000 and overwrite the Friday night backup. If no one will be in at the site to

change the tape during the day on Saturday, the TA should put the Saturday daily backup tape in the tape drive on Friday afternoon before leaving work.

It is important that the backup tapes, the operating system (OS) compact disks (CDs), TOPS application CDs, archive tapes and the application software tapes all are stored in a safe location.

3.3.2 VERIFY DATABASE EXPORT TO HARD DISK

To verify that the database export completed successfully, the TA should review the export log file. The log file contains a list of all tables exported and the number of records in each table from the database. To access the Daily export log, select option 3, *Backup Maintenance*, from the *TA System Administration Main Menu*.

3.3.3 REVIEW DAILY LOG

To review the Daily Log select option **1** and press **[ENTER]**, from the *Backup Maintenance Menu*.

```
*****************************************************************************
*                                                                           *
*                          BACKUP MAINTENANCE MENU                          *
*                                                                           *
*                      PLEASE CHOOSE ONE OF THE FOLLOWING                   *
*                                                                           *
*         1.  Review Daily Log                                              *
*         2.  Print Daily Log                                               *
*         3.  Scan The DAILY Backup Tape                                    *
*         4.  Perform Backup                                                *
*         5.  EXIT                                                          *
*                                                                           *
*****************************************************************************

Enter a number 1, 2, 3, OR 4 from the menu choices above:
```

Figure 3-4: Backup Maintenance Menu

The log file is displayed on the screen. As an example:

```
{SYS}
   Checking the work Backup Daily Log for Export Status:
   Export terminated successfully without warning.
   Export:  Release 7.1.4.1.0 - Production on {date} {time}
   {Export program output messages}.
.
. exporting table       DOM_PPSO_DPM_ZONE                3757 rows exported
. exporting table       DOM_VOLUME_MOVE_SERVICE           0 rows exported
. exporting table       DOM_WT_ADDL_SERVICE_ITEM            0 rows exported
. exporting referential integrity constraints
. exporting post tables actions
. exporting synonyms
. exporting views
```

```
. exporting stored procedures
. exporting triggers
. exporting default and system auditing options:
        Export terminated successfully without warnings.
 EOF:
```

The TA shall verify that this is the latest export file by checking the date and time on the third line of the log file. While reading the log file, and looking for errors, press **[ENTER]** at each **":"** prompt. The **":"** is located at the end of each screen full of text. This allows the TA to continue reading the export messages. The TA should look for the message "**Export terminated successfully without warnings**." If the **"Export terminated successfully without warnings."** message appears, the date and time are correct, and there are no error messages, the TA is finished reading the log. If the message **"Export terminated successfully without warnings"** does not appear, or the date and time are not correct or if there are error messages, the TA should first try to determine the cause. Then call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 for assistance if necessary. After the log file has been completely read, the system will return to the *Backup Maintenance Menu*.

When **EOF:** is displayed, press **[ENTER].** The *Backup Maintenance Menu* is displayed. The TA shall note any error messages found while reading the log file and print the Daily Log if necessary.

3.3.4 PRINT DAILY LOG

If errors are found in the log file, print the log file for later consultation with the MSRC. To do this, select option 2, *Print Daily Log*, and press **[ENTER]**, from the *Backup Maintenance Menu*.

```
{TA}  2 [ENTER]

{SYS} Which printer would you like to send the log?
      forms1   reports1    reports3
      For example, reports1

{TA}  {printername} [ENTER]

{SYS} request id is {printername}-id # 1 files
```

The log file is printed on the selected printer. The *Backup Maintenance Menu* is displayed.

3.3.5 PERFORM BACKUP

In the event data or directories are in jeopardy of being destroyed by natural disaster, equipment malfunction, operator error, or malicious damage to the system and/or the automatic backup did not work, you will need to perform a manual backup of the system data.

To manually backup the TOPS server and database, access the *Backup Maintenance Menu* as displayed in Figure 3-5. Select option 4 to *Perform Backup*.

```
**************************************************************************
*                                                                        *
*                          BACKUP MAINTENANCE MENU                       *
*                                                                        *
*                      PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                        *
*         1.  Review Daily Log                                           *
*         2.  Print Daily Log                                            *
*         3.  Scan The DAILY Backup Tape                                 *
*         4.  Perform Backup                                             *
*         5.  EXIT                                                       *
*                                                                        *
**************************************************************************

Enter a number 1, 2, 3, OR 4 from the menu choices above:
```

Figure 3-5: Backup Maintenance Screen

Two processes will occur: First, a prompt is displayed asking the proper backup tape to be inserted into the tape device for manual backup. Place a 4-mm 120-meter backup tape in the tape drive.

Second, the backup is performed in background mode by a script.

```
{TA} 4 [ENTER]

{SYS}
Please load a new tape to backup TOPS System...
The tape backup will be done in the background mode...!
Menu will reappear and the tape backup will continue.
Enter Y or y to continue, or enter N or n to stop now:
```

If the TA does not want to perform the backup, enter **N** or **n** and press **[ENTER]**. The system will redisplay the *Backup Maintenance Menu* and the TA can exit from there. If the TA wants to continue with the backup, enter **Y** or **y** and press **[ENTER]**.

The database is exported and a database dump file, *Daily.dmp,* is created in the */backup/data* directory. Following the database export, the backup is performed in the background and it is written to tape.

NOTE: Be patient the backup may take up to one or more hours to complete depending on the database size. No users are allowed to access the system during the backup process to prevent corruption of the database.

Once the backup is successfully completed, the tape will eject. Remove the tape, label it, and store

in a safe place after it has been verified.

3.3.5.1.1 VERIFY WRITE TO TAPE USING THE MENUS

The TA can verify the write to tape by using the menu options to scan the backup tapes.

3.3.5.1.2 SCAN THE DAILY BACKUP TAPE

To verify the daily backup tape, place the tape in the tape drive and select option 3 from the *Backup Maintenance Menu*. The TA can scan the backup tape looking for the proper date at the beginning of the backup tape, any errors, and if the backup writes to tape completed successfully.

```
**************************************************************************
*                                                                        *
*                          BACKUP MAINTENANCE MENU                       *
*                                                                        *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                        *
*        1.  Review Daily Log                                            *
*        2.  Print Daily Log                                             *
*        3.  Scan The DAILY Backup Tape                                  *
*        4.  Perform Backup                                              *
*        5.  EXIT                                                        *
*                                                                        *
**************************************************************************

Enter a number 1, 2, 3, OR 4 from the menu choices above:
```

Figure 3-6: Backup Maintenance Menu

```
{TA} 3 [ENTER]

{SYS}
Please load the tape that you want to check...
This process will take approximately 5 minutes.
Enter Y or y to continue, or enter N or n to stop now:

{TA} y [ENTER]
{SYS}
Beginning scan ...
drwxrwxrwx    6 root    other   0 Oct 11 14:19 2002, export/home
drwxrwxrwx    2 root    other   0 Oct  1 02:00 2002, export/home/spool
drwxrwxrwx   23 root    other   0 Oct 26 09:39 2002, export/home/acct
drwxrwxrwx    2 root    other   0 Oct 10 05:00 2002, export/home/acct/tamail
drwxr-xr-x    2 213     users   0 Oct 19 09:11 2002, export/home/acct/jimger
:
```

NOTE: The system will pause at the colon after reading some tape. The TA can advance the cursor and read the tape by pressing **[ENTER]**. Be patient and allow the system time to read large files. If **[ENTER]** is pressed too many times the system will return to the menu screen.

```
{TA}  [ENTER]

{SYS}:

{TA}  [ENTER]

{SYS}
drwxrwxrwx    2 root     other  512  Apr  6 18:11 2002, backup/data
-rw-r--r--    1 root     other 54432 Oct 10 12:00 2002, backup/data/Daily.dmp
-rw-r--r--    1 root     other 23673 Oct 10 12:00 2002, backup/data/Daily.log
drwxr-xr-x    2 root     other     0 Oct 10 12:00 2002, backup/locks
EOF:

{TA}  [ENTER]

{SYS} Scanning is complete ... remove the tape now!

{TA}  [ENTER]
```

The system will return to the *Backup Maintenance Menu*. If the information on the tape is correct, remove the tape and store in a safe place.

3.3.5.2 MANUALLY VERIFY DAILY BACKUP TAPE

To manually verify a noon or night backup, at the command line prompt, use the following *cpio* command:

```
{SYS} root@gbloc>

{TA}  cpio –itcvdumB < /dev/rmt/0

{SYS} System scrolls through tape and displays the list of files and
directories on the tape.
```

The following is an example of the end portion output of a daily tape:

```
drwxrwxrwx    2 root  other  512 Oct 10 12:26 2002, backup/data
-rw-r--r--    1 root  other  34001 Oct 10 12:02 2002, backup/data/Daily.log
-rw-r--r--    1 root  other  2607424 Oct 10 12:02 2002, backup/data/Daily.dmp
```

NOTE: Verify that the dates and files, *Daily.log* and *Daily.dmp*, shown at the end portion of the tape, are from the most recent daily backup.

After verifying the backup was successful, remove the tape from the tape drive, make sure it is properly labeled and stored. Insert another tape for the next backup.

3.4 USER MAINTENANCE

This menu option provides the functionality to add, delete, and update TOPS functional users. A

TOPS functional user is a user that has access to the TOPS application to process shipment records. The "add user" function will create a user ID by adding the user's information to the UNIX files, */etc/passwd* and */etc/shadow*, and to ORACLE tables. When deleting a user, the user information is deleted from the UNIX files, */etc/passwd* and */etc/shadow*, and from ORACLE tables.

It is recommended that the TA log onto the server from a workstation as *v7ora* and switch to *tadmin* and proceed to the *TA System Administration Main Menu* as explained in Section 3.1.1.

3.4.1 ADD A USER

In order for a new user to access and fully utilize the TOPS application, user account and access levels must be created through TADMIN.

To create a TOPS functional user in the system, access the *TA System Administration Main Menu*, then choose the keyboard type for the terminal type being used, next choose the option needed from the *User Maintenance Menu.*

```
*****************************************************************************
*           PLEASE CHOOSE THE KEYBOARD TYPE YOU ARE USING                   *
*                                                                           *
*  1. STANDARD KEYBOARD (286 OR TERMINAL)                                   *
*  2. 101  ENHANCED KEYBOARD (386 OR 486)                                   *
*                                                                           *
*        Enter 1 OR 2 :                                                     *
*****************************************************************************
```

The *User Maintenance Menu* is then displayed.

```
*****************************************************************************
*                          USER MAINTENANCE MENU                            *
*                                                                           *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                    *
*                                                                           *
*        1.  ADD A USER                                                     *
*        2.  DELETE A USER                                                  *
*        3.  UPDATE A USER                                                  *
*        4.  EXIT                                                           *
*                                                                           *
*****************************************************************************
Enter 1, 2, 3, OR 4 :

{TA}  1 [ENTER]
```

Figure 3-7: User Maintenance Menu

The screen depicted below is displayed.

```
SQL*Forms Run Form:  Release 3.0.16.12.9 – Production
```

```
Copyright © Oracle Corporation 1979, 1994.  All rights reserved.

Using Oracle Toolkit Version 01.00.20.03.01 Production
Using PL/QL Version 01.00.45.03.01 Production

                  SECURE DATABASE:  ENTER NAME AND PASSWORD

                 Username:
                 Password:

      Press ESC k at any time to show function keys
```

Figure 3-8: SQL*Forms User Screen

Enter a user id that has Database Administer (DBA) Authority.

```
{TA}  menuadmin [ENTER]

{TA}  {menuadmin password} [ENTER]
```

The *Create User Screen 1*, as shown in Figure 3-10, with the cursor positioned in the Login ID field is displayed.

```
********************************************************************************
/ USERMAIN                                                      Create User
********************************************************************************

                 Login ID    :

                 First Name  :

                 Last Name   :

                 Password Aging  :180   days

                 ORACLE Password:

                 Class  I  Site    :N          Query Only  :N




           Press  [NEXT PAGE] to enter Access Level Data.
           Press  [COMMIT] to commit record to the database.
           Press   [EXIT] to return to the menu.

      Press  [SPECIAL-1] to clear screen and enter another Login ID.
********************************************************************************
```

Figure 3-9: Create User Screen 1

The cursor is positioned in the **Login ID** field of the screen. Begin entering user information. After each entry press **[ENTER]**.

The Oracle password field is automatically populated with the information from the **Login ID** field. The functional user will use the Login ID as the password into the database when logging into the TOPS application. Within the system, there is a password aging function, which UNIX uses to determine how much time should elapse between each password change.

```
{Number of days} (i.e. 180 days is default)

{TA}  [ENTER]

{ORACLE password default is Login ID}

{TA}  [ENTER]
```

The **CLASS I SITE** default value is set to **N** for all users.

```
{TA}  [ENTER]
```

The **Query Only** field allows the user to only query information from the database. The default value is **N**, which allows the user to query, add, modify and delete data from the database. To give a user query only access to the database, enter **Y** in this field.

```
{TA}  N [ENTER] or Y [ENTER]
```

The TA will need to assign the appropriate TOPS modular access levels for each user. To assign access levels, press **[NEXT PAGE]** or **[F7]**. The *Create User Screen 2* displayed in Figure 3-10.

```
/ USERMAIN                              Create User
--------------------------------------------------------------------------------

    Valid User Classes for Login ID:

--------------------------------------------------------------------------------
    User
    Class     Description



Press [PREV PAGE] to return to the menu user screen.
```

Figure 3-10: Create User Screen 2

```
{TA} [LIST VALUES] or [ESC L] for a list of user class choices as noted
above.

{SYS}
In the pop-up window, [UP ARROW] or [DOWN ARROW]  to move to the desired
Access Level and [SELECT] or [F9].
```

NOTE: Do not press **[ESC D]** when on any of the access levels or the access level will be deleted from the table in the database. If a mistake is made when entering the access levels, continue with

the process and then remove it after committing.

The access levels, referred to as User Classes, allow the user to have access to individual modules. The User Class descriptions are displayed in Figure 3-11.

```
User Class  Description
         1        Allowed access only to designee for TO
         2        Allowed access to OTO functions.
         3        Allowed access only to NTS novations and Transfers.
      1000        Allowed access only to TOPS Main Menu.
      2000        Allowed access only to Counseling functions.
      3000        Allowed access only to NTS functions.
      4000        Allowed access only to Outbound functions.
      5000        Allowed access only to Inbound functions.
      6000        Allowed access only to QA functions.
      7000        Allowed access only to General functions.
      7777        QA for PPPOs only.
      8888        Allowed access only to Import Functions.
```

Figure 3-11: User Class Descriptions

The following is a description of some of the access levels:

- Access Level 1 is assigned to users requiring access to the words CALENDAR, OFFICE, and AVAIL where counselors can be added, updated, or deleted.
- Access Level 2 is assigned to users who transmit One-Time-Only (OTO) requests to Military Traffic Management Command (MTMC).
- Access Level 3 is assigned to users that process Non-Temporary Storage (NTS) novations and transfers.
- Access Level 1000 must be assigned to all users; this access level allows access to the TOPS Main Menu.
- Access Level 7000 should only be assigned to users requiring access to the General module where shipment data records can be changed or updated.
- Access Level 7777 is assigned to users at Personal Property Processing Office (PPPOs) who enter Quality Assurance (QA) inspection data.
- Access Level 8888 should only be assigned to those performing Import Functions.

Repeat these actions until all desired Access Levels for this user are displayed.

```
{TA} [EXIT] or [F10] to close the user class description pop-up window.

{TA} [PREVIOUS PAGE] or [ESC P] to return to the previous screen.

{TA} [COMMIT] or [F6] to commit the information to the database.
```

Once **[COMMIT]** or **[F6]** is pressed, user information is inserted in the */etc/passwd* and

/etc/shadow files. The user's home directory is created and the appropriate profile file is added to the user's home directory. The user's information is stored in the TOPS database. The TA is then prompted to enter the UNIX password for the user just created.

NOTE: The user password must be a minimum of 8 characters long and should be a combination of alphanumeric and special characters. For further information on creating secure passwords, refer to Section 3.9

```
{SYS}
{loginname}::{userid}:{groupid}:{user's
name}:/export/home/acct/{username}:/bin/sh
/usr/bin/pwconv: WARNING user{userid}has no password
Adding password aging to the user's UNIX system password environment!
now enter the user's UNIX system password (required):
New password:

{TA}  {user password} [ENTER]

{SYS} Re-enter new password:

{TA}  {user password again} [ENTER]

{SYS} passwd (SYSTEM): passwd successfully changed for {userid}

-- Press RETURN to return to SQL*Forms. --

{TA}  [ENTER]
```

The system displays the message *"FRM-40400: Transaction complete -- # Records posted and committed. Acknowledge the message by pressing Enter, and the system returns to the Create User Screen."*

The *Create User Screen* is displayed with the cursor positioned in the Login ID field again. To create another User ID, press **[SPECIAL-1]** or **[ESC 1]** and follow the above instructions.

After all users have been created, press **[EXIT]** or **[F10]**. The *User Maintenance Menu* is displayed.

3.4.2 DELETE USER

When deleting a user from the TOPS application, all directories, and files associated with that user will be removed.

Prior to removing a user from the system, it may be necessary to preserve queries, reports, or listings generated by that user. If this is the case, copy any necessary files and subdirectories from

the user's home directory to another directory on the system. You may need to create a new directory in which to copy the files and subdirectories. To do this, exit out of the *TA System Administration Menus*. Login as *v7ora* and *su* to *root*, perform the following commands:

```
{SYS} GBLOC login:

{TA}  v7ora [ENTER]

{SYS} password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – root [ENTER]

{SYS} password:

{TA}  {root password} [ENTER]

{SYS} root@gbloc>

{TA}  cd  /export/home/acct [ENTER]

{SYS} root@gbloc>

{TA}  mkdir {new directory} [ENTER]

{SYS} root@gbloc>

{TA}  cd  /export/home/acct/{username} [ENTER]

{SYS} root@gbloc>
```

Perform the following command to ensure that you are in the correct directory.

```
{TA}  pwd [ENTER]

{SYS} /export/home/acct/{username}
```

To copy the files from the user's directory to the new directory, perform the following command:

```
{TA}  find . -print | cpio -pdvu /export/home/acct/{new directory} [ENTER]
```

Before deleting the user from TOPS, verify that the entire user's files have been copied to the new directory. Perform the following commands:

```
{TA}  cd  /export/home/acct/{new directory} [ENTER]

{SYS} root@gbloc>

{TA}  pwd [ENTER]

{SYS} /export/home/acct/{new directory}
```

```
{TA}  ls -laR [ENTER]
```

Review the list of files that is displayed on the screen. If the listing is correct, exit to login.

```
{TA}  exit [ENTER]
```

After verification that all files and subdirectories have been copied into the new directory, login as *tadmin*. Select option 1, *User Maintenance*, from the *TA System Administration Menu*. Choose the keyboard type for the terminal being used.

```
*******************************************************************************
*                                                                             *
*           PLEASE CHOOSE THE KEYBOARD TYPE YOU ARE USING                     *
*                                                                             *
*  1. STANDARD KEYBOARD (286 OR TERMINAL)                                     *
*  2. 101  ENHANCED KEYBOARD (386 OR 486)                                     *
*                                                                             *
*        Enter 1 OR 2 :                                                       *
*******************************************************************************
```

The *User Maintenance Menu* is displayed, as shown in Figure 3-12.

```
*******************************************************************************
*                                                                             *
*                          USER MAINTENANCE MENU                              *
*                                                                             *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                      *
*                                                                             *
*        1.  ADD A USER                                                       *
*        2.  DELETE A USER                                                    *
*        3.  UPDATE A USER                                                    *
*        4.  EXIT                                                             *
*                                                                             *
*******************************************************************************

Enter 1, 2, 3, OR 4 :
```

Figure 3-12: User Maintenance Menu

To delete a functional user, select **option 2** from the *User Maintenance Menu* and press **[ENTER]**. The following screen is displayed:

```
SQL*Forms Run Form:  Release 3.0.16.12.9 – Production
```

```
Copyright © Oracle Corporation 1979, 1994.  All rights reserved.

Using Oracle Toolkit Version 01.00.20.03.01 Production
Using PL/QL Version 01.00.45.03.01 Production

                   SECURE DATABASE:  ENTER NAME AND PASSWORD

                  Username:
                  Password:

      Press ESC k at any time to show function keys
```

Figure 3-13: SQL*Forms User Screen

The cursor is positioned in the **Username** field of the screen. Begin entering user information in the following manner:

```
Enter a user ID that has DBA Authority.
{TA}  menuadmin [ENTER]

{TA}  {menuadmin password} [ENTER]
```

The *Delete User* Screen is displayed.

```
********************************************************************************
/ USERMAIN                                                      Delete User
********************************************************************************
                  Login ID    :

                  First Name  :

                  Last Name   :

                  Password Aging  :      days

                  Class  I  Site    :           Query Only  :

            Press  [NEXT PAGE] to enter Access Level Data.
            Press  [COMMIT] to commit record to the database.
            Press   [EXIT] to return to the menu.

      Press  [SPECIAL-1] to clear screen and enter another Login ID.
********************************************************************************
```

Figure 3-14: Delete User Screen

```
The cursor is positioned in the Login ID field of the screen.
{TA}  {login id} [EXEC QUERY] or [ESC X].

{SYS} Found the user home directory...
Checked password file - Looking into TOPS database for user information...
Found TOPS database information on user - ready to return to menu.
Press RETURN to return to SQL*Forms
{TA}  [ENTER]
```

Once the screen is populated with the user's information, delete the record by performing the

following:

```
{TA}  [COMMIT] or [F6]

{SYS} {username}
      – Press [RETURN] to return to SQL*Forms –

{TA}  [ENTER]

{SYS} Transaction complete -- 1 records posted and committed. Ok

{TA}  [ENTER]

{SYS} User ID - {username} has been deleted. Ok

{TA}  [ENTER]
```

To delete another user ID, begin again with the query on the login ID. When finished deleting users, exit the screen.

```
{TA}  [EXIT] or [F10]

{SYS} Query cancelled.

{TA}  [EXIT] or [F10]
```

3.4.3 UPDATE USER

To modify user information, access the *TA System Administration Main Menu* and select *User Maintenance*. Next, select the keyboard option based on the terminal type.

NOTE: All user information may be modified except for the login ID.

The *User Maintenance Menu* depicted in Figure 3-15 is displayed.

```
*******************************************************************************
*                          USER MAINTENANCE MENU                              *
*                                                                             *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                      *
*                                                                             *
*        1.  ADD A USER                                                       *
*        2.  DELETE A USER                                                    *
*        3.  UPDATE A USER                                                    *
*        4.  EXIT                                                             *
*******************************************************************************

Enter 1, 2, 3, OR 4 :

{TA}  3 [ENTER]
```

Figure 3-15: User Maintenance Menu

```
SQL*Forms Run Form:  Release 3.0.16.12.9 – Production
```

```
Copyright © Oracle Corporation 1979, 1994.  All rights reserved.

Using Oracle Toolkit Version 01.00.20.03.01 Production
Using PL/QL Version 01.00.45.03.01 Production

                   SECURE DATABASE:  ENTER NAME AND PASSWORD

                  Username:
                  Password:

      Press ESC k at any time to show function keys
```

Figure 3-16: SQL * Forms User Screen

Enter a user ID that has DBA Authority.

```
{TA}  menuadmin [ENTER]

{TA}  {menuadmin password} [ENTER]
```

The *Modify a User Screen 1* as shown in Figure 3-17 is displayed.

3.4.3.1 MODIFY USER INFO

The functional user information and access levels can be updated by using the *Modify User screens*:

```
*******************************************************************************
/ USERMAIN                                                        Modify User
*******************************************************************************
                  Login ID    :

                  First Name  :

                  Last Name   :

                  Password Aging  :        days

                  ORACLE Password:

                  Class  I  Site    :           Query Only  :

            Press  [NEXT PAGE] to enter Access Level Data.
            Press  [COMMIT] to commit record to the database.
            Press   [EXIT] to return to the menu.

      Press  [SPECIAL-1] to clear screen and enter another Login ID.
*******************************************************************************
```

Figure 3-17: Update User Screen 1

The cursor is positioned in the **Login ID** field of the screen. Enter the Login ID and query for the user information to update.

```
{TA}  {login id} [EXEC QUERY] or [ESC X]
```

```
{SYS}
Found the user home directory...
Checked passwd file - Looking into TOPS database for user information...
Found TOPS database information on user - ready to return to menu...

-- Press RETURN to return to SQL*Forms --
```

Press **[ENTER]** until the cursor is positioned in the field to be modified.

```
{TA}  Enter new data.

To modify access levels:

{TA}  [NEXT PAGE] or [F7]
```

3.4.3.2 MODIFY ACCESS LEVELS

The *Modify User Screen 2* as shown in Figure 3-18.

```
/ USERMAIN                          Modify User
--------------------------------------------------------------------------------
    Valid User Classes for Login ID:
--------------------------------------------------------------------------------
    User
    Class     Description



Press [PREV PAGE] to return to the menu user screen.
```

Figure 3-18: Update User Screen 2

NOTE: If an access level is to be added, the current access levels for the user will be shown in the above display. **[DOWN ARROW]** to the first blank line before pressing the list values.

```
{TA}  [DOWN ARROW] to first blank line

{TA}  [LIST VALUES] or [ESC L] for a list of user class choices

{TA}  [UP ARROW] or [DOWN ARROW] to position the cursor on the access levels
to be added.

{TA}  [SELECT] or [F9] for selections

{TA}  [EXIT] or [F10] to close the pop-up window.
```

NOTE: Refer to Section 3.4.1 for an explanation of the Access Levels.

Once all modifications or additions have been made, return to the previous screen and commit your changes to the database.

```
{TA}  [PREVIOUS PAGE] or [ESC P]
```

```
{TA}  [COMMIT] or [F6]
```

3.4.3.3 REMOVE ACCESS LEVELS

If an access level is to be removed, repeat above steps to get Screen 1 of Update User. Query on Login ID, press **[NEXT PAGE]** or **[F-7]** to get to next page.

```
{TA}  {login id}

{TA}  [EXEC QUERY] or [ESC X]

{TA}  [NEXT PAGE] or [F7]
```

The list of access levels currently assigned to the user is displayed.

NOTE: More than one access level at a time can be removed.

Arrow down to the first access level to be removed and delete the record by pressing the **[ESC D]**. Then, arrow down to the next access level and repeat the process. When all the access levels have been deleted, go to the previous page and commit the changes to the database.

```
/ USERMAIN                                  Modify User
--------------------------------------------------------------------------------
User Classes for Login ID:  XXXXXX
--------------------------------------------------------------------------------
    User
    Class               Description
    1              Allowed access only to designee for TO.
    2              Allowed access to process One-Time-Only shipments
    3              Allowed access to process Transfers and novations
    1000           Allowed access only to TOPS Main Menu
    2000           Allowed access only to Counseling functions.
    3000           Allowed access only to NTS functions.
    4000           Allowed access only to Outbound functions.
    5000           Allowed access only to Inbound functions.
    6000           Allowed access only to QA functions.
    7000           Allowed access to General Functions.
```

Figure 3-19: Update User screen 3

```
{TA} [DOWN ARROW] or [UP ARROW] until the cursor is positioned on the access
level to be removed.

{TA} [DELETE RECORD] or [ESC D]

{TA} Repeat above two steps if removing more than one access level.

{TA} [PREVIOUS PAGE] or [ESC P]

{TA} [COMMIT] or [F6] to commit the changes to the database.
```

The system will commit any changes made and prompt the TA to change the user's UNIX

password. The TA will answer **Y** or **N.** The system will return to the *Update User Screen*. The TA can modify additional users or exit to the *User Maintenance Menu.*

```
{SYS}
{login name}:{encrypted password}:{userid}:{groupid}:
{user's full name}:{user's home directory}:/bin/sh
Would you like to change the UNIX password - [Y]es or [N]o?
If the user's password is not to be changed, enter N and [ENTER]

If the user's password is to be changed, Y [ENTER]

{SYS} Resetting the user's password age - requires same or new password!

New password:

{TA}  {user password} [ENTER]

{SYS} Re-enter new password:

{TA}  {user password again} [ENTER]

{SYS} -- Press RETURN to return to SQL*Forms--

{TA}  [ENTER]
```

To modify another user:

```
{TA}  [SPECIAL-1] or [ESC 1] and follow the steps outlined above.

{TA}  [COMMIT] or [F6] to commit the changes to the database.
```

Once **[COMMIT]** or **[F6]** is pressed the user information the ORACLE database and the UNIX operating system environment is updated. Exit the screen when finished.

3.5 PRINTER MAINTENANCE

After the system upgrade to ICP9.5, the printer maintenance from the *TA System Administration Main Menu* applies only to the printers assigned for local site printing. For any other printing job through the application (i.e. forms and reports), the printing will default to the printer assigned to the terminal emulator.

To add network printers to the system use the *Printer Maintenance Menu* in the *TA System Administration Main Menu***.** The TA must first obtain an IP Address, IP Netmask, and IP Gateway for each printer to be added to the system from the local Directorate of Information Management (DOIM) or Communications/Network Control Office. The TA should determine a device name and name for each printer to be added. After the obtaining the above information and configuring the printer as outlined below, use the *TA System Administration Menu* procedures to setup the network

printer. Log onto the system as *tadmin.* Select option 4**,** *Printer Maintenance,* from the *TA System Administration Main Menu.* Select option 3 - *Add a Network Printer.* The menu screens for installing a printer are displayed.

3.5.1 CONFIGURE THE LEXMARK PRINTER T610 FOR THE NETWORK

Cable the Lexmark printer to the network. Connect power cord, load paper, and turn on the power switch. The printer will go through a power up and self check routine, and if there are no problems, the message '**Ready**' is displayed in the display panel window.

3.5.1.1 SET PRINTER IP ADDRESS

To set a network printer IP address, perform the following steps:

{TA} Press "**GO**" The green button, number 5, to see 'READY' in the display window.

{TA} Press "**Menu 1**", once to display 'NETWORK MENU'.

{TA} Press "**SELECT 3**", to display 'STANDARD NETWORK'.

{TA} Press "**SELECT 3**", to select 'STANDARD NETWORK'.

{TA} Press "**Menu 2**", four times, until 'STD NET SETUP' displays.

{TA} Press "**SELECT 3**", to select 'STD NET SETUP'.

{TA} Press "**Menu 2**", four times until TCP/IP displays.

{TA} Press "**SELECT 3**", to select TCP/IP.

{TA} Press "**Menu 2**", four times until 'SET IP ADDRESS' displays.

{TA} Press "**SELECT 3**" to select "SET IP ADDRESS".

{SYS} System will blink first set of numbers upper set for the IP Address.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the first set of numbers of the IP Address is correctly set.

{TA} Press "**SELECT 3**", the second set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the second set of numbers of the IP Address is set.

{TA} Press "**SELECT 3**", the third set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the third set of numbers of the IP Address is set.

{TA} Press "**SELECT 3**", the fourth set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the fourth set of numbers of the IP Address is set.

{TA} Press "**SELECT 3**", to save and return to 'SET IP ADDRESS' display.

{TA} Press "**GO**" to return to the 'READY' display.

3.5.1.2 SET THE IP NETMASK ON THE PRINTER

To set the IP netmask on the printer, perform the following steps:

{TA} Press "**GO**" The green button, number 5, to get to the 'READY' condition in the display window.

{TA} Press "**Menu 1**", once to display 'NETWORK MENU'.

{TA} Press "**SELECT 3**", to display 'STANDARD NETWORK'.

{TA} Press "**SELECT 3**", to select 'STANDARD NETWORK'.

{TA} Press "**Menu 2**", four times, until 'STD NET SETUP' displays.

{TA} Press "**SELECT 3**", to select 'STD NET SETUP'.

{TA} Press "**Menu 2**", four times until TCP/IP displays.

{TA} Press "**SELECT 3**", to select TCP/IP.

{TA} Press "**Menu 2**", five times until 'SET IP Netmask' displays.

{TA} Press "**SELECT 3**" to select "SET IP Netmask".

{SYS} System will blink first set of numbers upper set for the Netmask.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the first set of numbers of the Netmask is correctly set.

{TA} Press "**SELECT 3**", the second set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the second set of numbers of the Netmask is set.

{TA} Press "**SELECT 3**", the third set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the third set of numbers of the Netmask is set.

{TA} Press "**SELECT 3**", the fourth set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the fourth set of numbers of the Netmask is set.

{TA} Press "**SELECT 3**", to save and return to 'SET IP Netmask' display.

{TA} Press "**GO**" to return to the 'READY' display.

3.5.1.3 SET THE IP GATEWAY ON THE PRINTER

To set the IP gateway on the printer, perform the following steps:

{TA} Press "**GO**" The green button, number 5, to get to the 'READY' condition in the display window.

{TA} Press "**Menu 1**", once to display 'NETWORK MENU'.

{TA} Press "**SELECT 3**", to display 'STANDARD NETWORK'.

{TA} Press "**SELECT 3**", to select 'STANDARD NETWORK'.

{TA} Press "**Menu 2**", four times, until 'STD NET SETUP' displays.

{TA} Press "**SELECT 3**", to select 'STD NET SETUP'.

{TA} Press "**Menu 2**", four times until TCP/IP displays.

{TA} Press "**SELECT 3**", to select TCP/IP.

{TA} Press "**Menu 2**", six times until 'SET IP Gateway' displays.

{TA} Press "**SELECT 3**" to select "SET IP Gateway".

{SYS} System will blink first set of numbers upper set for the IPGateway.

{TA} Press "**Menu 1**" **or** "**Menu 2**" buttons until the first set of numbers of the Gateway is correctly set.

{TA} Press "**SELECT 3**", the second set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the second set of numbers of the Gateway is set.

{TA} Press "**SELECT 3**", the third set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the third set of numbers of the Gateway is set.

{TA} Press "**SELECT 3**", the fourth set of numbers is displayed and blinking.

{TA} Press "**Menu 1**" or "**Menu 2**" buttons until the fourth set of numbers of Gateway is set.

{TA} Press "**SELECT 3**", to save and return to 'SET IP GATEWAY' display.

{TA} Press "**GO**" to return to the 'READY' display.

3.5.1.4 SET THE IP ACTIVATED PROTOCOL ON THE PRINTER

To set the IP activated protocol on the printer, perform the following steps:

{TA} Press "**GO**" The green button, number 5, to get to the 'READY'

condition in the display window.

{TA} Press "**Menu 1**", once, 'Network Menu' shows in display.

{TA} Press "**SELECT 3**", to display 'STANDARD NETWORK.'

{TA} Press "**SELECT 3**", to select STANDARD NETWORK.'

{TA} Press "**Menu 2**", four times, until 'STD NET SETUP' displays.

{TA} Press "**SELECT 3**", 'STD NETWORK' displays.

{TA} Press "**Menu 2**", until TCP/IP shows in display.

{TA} Press "**SELECT 3**", to select TCP/IP.

{TA} Press "**Menu 2**" until "Activate = Yes*" shows in display.

{TA} Press "**SELECT 3**", to select and 'save'.

{TA} Press "**Go**" to return to 'Ready'.

3.5.1.5 SET BOOTP PROTOCOL ON THE PRINTER

To set the BOOTP protocol on the printer, perform the following steps:

{TA} Press "**Go**" The green button, number 5, to get to the 'READY' condition in the display window.

{TA} Press "**Menu 1**", once, 'Network Menu' shows in display.

{TA} Press "**SELECT 3**", to display 'STANDARD NETWORK.'

{TA} Press "**SELECT 3**", to select STANDARD NETWORK.'

{TA} Press "**Menu 2**", four times, until 'STD NET SETUP' displays.

{TA} Press "**SELECT 3**", 'STD NETWORK' displays.

{TA} Press "**Menu 2**", four times, until TCP/IP shows in display.

{TA} Press "**SELECT 3**", to select TCP/IP.

{TA} Press "**Menu 2**", two times, until 'Enable BOOTP' shows in display.

{TA} Press "**SELECT 3**" and "**Menu 2**" until "Enable BOOTP = Yes* shows in display.

{TA} Press "**SELECT 3**" enable and save.

{TA} Press "**Go**" to return to 'Ready'.

3.5.1.6 ADVANCE SETUP

To set the advance setup on the printer, perform the following steps:

{TA} Press "**Go**" The green button, number 5, to get to the 'READY' condition in the display window.

{TA} Press "**Menu 1**", four times until 'PCL EMUL menu shows in display.

{TA} Press "**SELECT 3**", to select PCL EMUL.

{TA} Press " **Menu 2**", eight times until 'Auto CR after LF' shows in display.

{TA} Press "**SELECT 3**" and the "**Menu 2**" to select 'Auto CR after LF' = On*.

{TA} Press "**SELECT 3**", to select and save.

{TA} Press "**Menu 2**", once, 'Auto LF after CR' shows in display.

{TA} Press "**SELECT 3**" and then "**Menu 2**" to select 'Auto LF after CR' = On*.

{TA} Press "**SELECT 3**", to select and save.

{TA} Press "**Go**" to return to 'Ready'.

3.5.1.7 PRINT STATUS PAGE

To print a status page from the printer, perform the following steps:

{TA} Press "**Go**" to get to the 'Ready' display.

{TA} Press "**Menu 2**" three times until the "Utilities Menu" is in the display window.

{TA} Press "**SELECT 3**" to select the "Utilities Menu", the "Quick demo" displays.

{TA} Press "**Menu 2**" once "Print Menus" displays.

{TA} Press "**SELECT 3**" once.

After a few seconds, the printer will print out the LEXMARK Optra T610 Settings Page and 'Ready' is displayed. See example in Figure 3-20.

3.5.1.8 PRINT LEXMARK T610 NETWORK SETUP PAGE

To print a network setup page for the T610 printer, perform the following steps:

{TA} Press "**GO**", to get to the 'Ready' display.

{TA} Press "**Menu 2**", three times, the "Utilities Menu" is in the display window.

{TA} Press "**Select 3**", to select "Utilities Menu".

{TA} Press "**Menu 2**" twice, the "Print Net Setup" displays.

{TA} Press "**Select 3**" once.

After a few seconds, the LEXMARK Optra T610 Ethernet 10/100 Page will begin to print. ‘Ready’ is displayed in the display panel window of the printer. See example in Figure 3-21.

PAPER MENU
Paper Source = Tray 1

PAPER SIZE
Tray 1 = Letter
MP Feeder Size = Letter
Manual Pap Size = Letter
Manual Env Size = Letter

PAPER TYPE
Tray 1 Type = Plain Paper
MP Feeder Size = Custom Type 6
Manual Pap Size = Plain Paper
Manual Env Size = Envelope

CUSTOM TYPES
Custom Type 1 = Paper
Custom Type 2 = Paper
Custom Type 3 = Paper
Custom Type 4 = Paper
Custom Type 5 = Paper
Custom Type 6 = Paper
Substitute Size = Letter/A4
Configure MP = Cassette
Envelope Enhance = On

PAPER TEXTURE
Plain Texture = normal
Card Stock Text = normal
Trnsprncy Text = normal
Labels Texture = normal
Bond Texture = Rough
Enevlope Texture = normal
Ltr head Texture = normal
Preprint Texture = normal
Colored Texture = normal
Custom 1 Texture = normal
Custom 2 Texture = normal
Custom 3 Texture = normal
Custom 4 Texture = normal
Custom 5 Texture = normal
Custom 6 Texture = normal

PAPER WEIGHT
Plain Weight = normal
CardStock Weight = normal
Trnsprncy Weight = normal
Labels Weight = normal
Bond Weight = normal
Enevlope Weight = normal
Ltr head Weight = normal
Preprint Weight = normal
Colored Weight = normal
Custom 1 Weight = normal
Custom 2 Weight = normal
Custom 3 Weight = normal
Custom 4 Weight = normal
Custom 5 Weight = normal
Custom 6 Weight = normal

FINISHING MENU
Copies = 1
Blank Pages = Do not Print
Collation = Off
Separator Sheets = none
Separator Sources = Tray 1
Multipage Print = Off
Multipage Order = Horizontal
Multipage View = Auto
Multipage Border = none

ULILITIES MENU
Quick Demo
Print Menus
Print Net Setup
Print Fonts
Print Demo
Factory Defaults
Hex Trace

QUALITY MENU
Print Resolution = 600 dpi
Toner Darkness = 7 -…v…+
PQET = On
PictureGrade =On

SETP MENU
Printer Language = PCL Emulation
Power Saver = 20
Resource Save = Off
Print Timeut = 90
Wati Timeout = 40
Auto Continue = Disabled
Jam Recovery = Auto
Page Protect = Off
Print Area = normal
Display Language = English
Alarm Control = Single
Toner Alarm = Off

PCL EMUL MENU
Font Source = Residnet
Font aName = RO Courier
Oritch = 10.00
Symbol Set = 10U PC-8
Orientation = Portrait
Lines Per Page = 60
A4 Width = 198 mm

TRAY RENUMBER
Assign MP Feeder = Off
Assign Tray 1 = Off
Assign Man Paper = Off
Assign Man Env = Off

VIEW FACTORY DEF
MPF Default = 8
T1 Default = 1
T2 Default = 4
T3 Default = 5
T4 Default = 20
T5 Default = 21
Env Default = 6
MPap Default = 2
Menv Default = 4
Auto CR after LF = On
Auto LF after CR = On

POSTSCRIPT MENU
Print PS Error = Off

PARALLEL MENU
STD PARALLEL
PCL SmartSwitch = On
PS SmartSwitch = On
NPA Mode = Auto
Parallel Buffer = Auto
Advanced Status = On
Protocol = Fastbytes
Honor Init = Off
Parallel Mode 2 = On

NETWORK MENU
STANDARD NETWORK
PCL SmartSwitch = On
PS SmartSwitch = On
NPA Mode = Auto
Network Buffer = Auto
STD NET SETUP

Other Settings
Tray 1 Auto Size = On
Res. Reduction = On
PCL Type 1 Fonts = On
Feed Timeout = 60
Job Timeout = Disable
Stored Job Limit = 5

Printer Information
Page Count 5143
Installed Memory 8MB
Serial Number 4194808
Engine 78.70-15*
Boot 12.00-0*
Engine Card 15A
Base 531.29wd2-133
Ethernet 10/100 014.016
Panel 07.01
Font 8.09

Cartridge Information
Toner Level 0% 100%
Serial Number 002585766D
Capacity 10K
Prebate
Type normal

Figure 3-20: Lexmark Optra T610 Status Page Setting

Ethernet 10/100

Standard Network Card

Status:	Connected
Speed, Duplex:	100 Mbps, Half Duplex
End-of_job Timeout	90
UA MSB, Canonical:	002000F051D3, 0004000F8ACB
LAA:	0000000000000,000000000000
Part Number:	99A1111
EC:	543082T, MN_SH_2
Firmware, Bootcode, Revision:	3.14.16.9.4
Compi:	thralls.ces.neppci3.sh3.03.23.00.14.02

Integrated Network Option Settings

Printer Type:	Lexmark Optra T610

LexLink

Active:	Yes
Nickname:	002000F051D3

Apple Talk*

Active:	no Lexmark IOP/EOP
Name:	LF051D3 Lexmark Optra T610
Type:	LaserWriter
Zone:	*
Address:	<Disabled>

TCP/IP

Active:	Yes
DHCP, BOOTP, RAPP Enabled	Yes, Yes, Yes
Address Source:	DHCP
Address:	144.101.36.18
Netmask:	255.255.248.0
Gateway:	144.101.32.1
Hostname, WINS Status:	LXKF051D3, Pending
WINS Server:	144.101.12.25
DHCP Server:	144.101.32.2

NetWare

Active:	Yes
Login Name:	!LEX002000F051D3
Mode:	PSERVER
Network Number:	00000000

*AppleTalk is a trademark of Apple Computer, Inc.

Figure 3-21: Lexmark Optra T610 Ethernet 10/100

3.5.1.9 ADD NEW NETWORK PRINTER TO EXISTING IP ADDRESS AND DEVICE

Log onto the server from a workstation as *v7ora* and *su* to *tadmin* using the following instructions:

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – tadmin

{SYS} Password

{TA}  {tadmin password} [ENTER]
```

The *TA System Administration Main Menu* is displayed.

```
*************************************************************************
*                                                                       *
*                    TA SYSTEM ADMINISTRATION MAIN MENU                 *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  USER MAINTENANCE                                           *
*        2.  MAIL MAINTENANCE                                           *
*        3.  BACKUP MAINTENANCE                                         *
*        4.  PRINTER MAINTENANCE                                        *
*        5.  CHECK/KILL PROCESS OR USER ID                              *
*            OR REBOOT/SHUTDOWN DBMS OR SYSTEM                          *
*        6.  SECURITY                                                   *
*        7.  EXIT                                                       *
*                                                                       *
*                                                                       *
*************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:
```

Select option 4 and press **[ENTER]** to select PRINTER MAINTENANCE.

NOTE: The TA should know the IP address where the printer will be attached to the network or can look in the */etc/hosts* file to obtain it.

The P*rinter Maintenance Menu* is displayed.

```
**************************************************************************
*                                                                        *
*                        PRINTER MAINTENANCE MENU                        *
*                                                                        *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                        *
*        1.  Check Printer/Spool Status                                  *
*        2.  Add a Serial (Xyplex) Printer                               *
*        3.  Add a Network Printer                                       *
*        4.  Remove a Printer                                            *
*        5.  Cancel a Print Job                                          *
*        6.  EXIT                                                        *
*                                                                        *
*        NOTE: Xyplex server port must be configured for new printers    *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide.  *
*                                                                        *
**************************************************************************

Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  3 [ENTER]

{SYS} Please enter the IP address of the Network Printer or 'q' to QUIT..
```

Enter the IP address of the existing device the printer will be attached to, or the new IP address if it is a new printer being added.

```
{TA}  {ip address} [ENTER]

{SYS} {IP ADDRESS}   TOPSPTR1  topsptr1

IP Address 123.101.123.99 is already present in the /etc/hosts file...
Do you wish to continue using this IP Address and ALIAS?

{TA}  y [ENTER]

{SYS}
USING TOPSPTR1 for the ALIAS...
Listed below are the printers defined for the system.
Press [RETURN] to continue...

{TA}  [ENTER]

{SYS} Listed below are the printers currently defined for the system:

PRINTER NUMBER    LOCATION    TYP
            1     topsptr1    LZR
            2     trnrmptr1   LZR
Press [RETURN] to continue...

{TA}  [ENTER]
```

The printer name is the location name for the printer being added. It can be the same as the name in

the host file for the physical network printer or any other name that is currently not being used for another printer.

CAUTION: Do not make the printer name more than 9 characters long.

The system will not add the printer into the application side of the program if the printer's name is too long. It will add it to the *hosts* file but you will only be able to print on the UNIX side of the system using the *lp* command. Choose a printer name that is representative of where the printer is located or what the printer is used for but less than nine characters in length.

NOTE: Type the new printer name on the same line as the system response line:

```
{SYS}What is the name for the new printer ex. reports1?

{TA}  {printername} [ENTER]

{SYS}
PRINTER NUMBER LOCATION   TYP
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
What is the next printer number in TOPS? 3 [ENTER]

printer "jimsptr2" now enabled
destination "jimsptr2" now accepting requests

The jimsptr2 printer has been added.

Please press [RETURN] to continue:

{TA}  [ENTER]
```

Press **[ENTER]** and the system will return to *Printer Maintenance Menu* where the TA can either exit or perform other printer maintenance operations.

3.5.1.10 ADD NEW NETWORK PRINTER TO NEW IP ADDRESS AND DEVICE

Log onto the server from a workstation as *v7ora* and *su* to *tadmin* using the following instructions:

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>
```

```
{TA}  su – tadmin

{SYS} Password

{TA}  {tadmin password} [ENTER]
```

The *TA System Administration Main Menu* is displayed.

```
*****************************************************************************
*                                                                           *
*                     TA SYSTEM ADMINISTRATION MAIN MENU                    *
*                                                                           *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                    *
*                                                                           *
*         1.  USER MAINTENANCE                                              *
*         2.  MAIL MAINTENANCE                                              *
*         3.  BACKUP MAINTENANCE                                            *
*         4.  PRINTER MAINTENANCE                                           *
*         5.  CHECK/KILL PROCESS OR USER ID                                 *
*             OR REBOOT/SHUTDOWN DBMS OR SYSTEM                             *
*         6.  SECURITY                                                      *
*         7.  EXIT                                                          *
*                                                                           *
*                                                                           *
*****************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:
```

Select option 4, and press **[ENTER]** to select *Printer Maintenance.*

NOTE: The TA should obtain the IP address where the printer will be attached to the network before proceeding.

The *Printer Maintenance Menu* is displayed.

```
*****************************************************************************
*                         PRINTER MAINTENANCE MENU                          *
*                                                                           *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                    *
*                                                                           *
*         1.  Check Printer/Spool Status                                    *
*         2.  Add a Serial (Xyplex) Printer                                 *
*         3.  Add a Network Printer                                         *
*         4.  Remove a Printer                                              *
*         5.  Cancel a Print Job                                            *
*         6.  EXIT                                                          *
*                                                                           *
*         NOTE: Xyplex server port must be configured for new printers      *
*         Check in the TOPS SUN Administrator's Maintenance Users Guide.    *
*                                                                           *
*****************************************************************************

Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:
```

```
{TA}  3 [ENTER]

{SYS} Please enter the IP address of the Network Printer or 'q' to QUIT..
```

Enter the new IP address of the new network printer that will be attached to the network.

```
{TA}  {ip address} [ENTER]

{SYS}
Please enter the ALIAS assigned to the IP address 144.101.36.20
An example of an ALIAS would be printer1, printer2, etc...
This does not have to be the name of the printer you are using
in TOPS such as forms1, reports1, etc.

{TA}  {aliasname} [ENTER]

{SYS}
Listed below are the printers defined for the system.
Press [RETURN] to continue...

{TA}  [ENTER]

{SYS}
PRINTER NUMBER LOCATION   TYP
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR
Press [RETURN] to continue...
{TA}  [ENTER]

{SYS} What is the name for the new printer ex. reports1?

{TA}  {printername} [ENTER]

{SYS} Press [RETURN] to continue...

PRINTER NUMBER LOCATION   TYP
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR
Press [RETURN] to continue...

{TA}  [ENTER]

{SYS} What is the next printer number in TOPS?

{TA}  {printer number} [ENTER]

{SYS} printer "test1" now enabled destination "test1" now accepting requests
 The test1 printer has been added.
Please press [RETURN] to continue:
```

Press **[ENTER]** and to return to *Printer Maintenance Menu* where the TA can either exit or perform other printer maintenance operations. After the installation of all desired printers is completed, select option 6 to return to the *TA System Administration Main Menu.*

3.5.2 TEST PRINTER

Test that the printer will print from the UNIX command line. This can be accomplished by using the *lp* command. Print a UNIX file (i.e. */etc/group*) and a blank DD1299 to the printer. Login as *root* and perform the following commands to test the printer:

```
{TA}  lp -d{report printername} /etc/group [ENTER]

{SYS} request id is {printername}-### (1 file(s))

{TA}  lp -d{form printername} /mapform/forms/dd1299.pcl [ENTER]

{SYS} request id is {printername}-### (1 file(s))
```

If the files do not print, call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 for assistance.

3.5.3 CHECK PRINTER DEFINITIONS

To view the printer definitions enter SQL*Plus, then select data from the LOCAL_PRINTER_SITE table to view the printer definitions. Perform the following commands:

```
{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS}  SQL>

{TA}  select * from local_printer_site order by printer_number; [ENTER]
```

A list of available printers is displayed on the screen. The following is an example:

```
PRINTER_NUMBER PRINTER_LO PRI
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR

3 rows selected
```

The variable column, **PRINTER_NUMBER,** represents the printer number in the LOCAL_PRINTER_SITE table. The variable column, **PRINTER_LO,** represents the UNIX printer name, and the variable column, **PRI,** represents the type of printer. **LZR** represents a laser type printer.

3.5.4 REMOVE PRINTER

The *TA System Administration Menu* allows for the removal of printers. Perform the following command to log onto the system as the *tadmin* user:

```
{SYS} {GBLOC} login:

{TA}  tadmin [ENTER]

{SYS} password:

{TA}  {tadmin password} [ENTER]
```

The *TA System Administration Main Menu* is displayed:

```
*****************************************************************************
*                                                                           *
*                     TA SYSTEM ADMINISTRATION MAIN MENU                    *
*                                                                           *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                    *
*                                                                           *
*        1.  USER MAINTENANCE                                               *
*        2.  MAIL MAINTENANCE                                               *
*        3.  BACKUP MAINTENANCE                                             *
*        4.  PRINTER MAINTENANCE                                            *
*        5.  CHECK/KILL PROCESS OR USER ID                                  *
*            OR REBOOT/SHUTDOWN DBMS OR SYSTEM                              *
*        6.  SECURITY                                                       *
*        7.  EXIT                                                           *
*                                                                           *
*                                                                           *
*****************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:

{TA}  4 [ENTER]
```

The *Printer Maintenance Menu* is displayed.

```
*****************************************************************************
*                                                                           *
*                         PRINTER MAINTENANCE MENU                          *
*                                                                           *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                    *
*                                                                           *
*        1.  Check Printer/Spool Status                                     *
*        2.  Add a Serial (Xyplex) Printer                                  *
*        3.  Add a Network Printer                                          *
*        4.  Remove a Printer                                               *
*        5.  Cancel a Print Job                                             *
*        6.  EXIT                                                           *
*                                                                           *
*        NOTE: Xyplex server port must be configured for new printers.      *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide.     *
*                                                                           *
```

```
********************************************************************************
Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  4 [ENTER]

The following is a list of your current printers:
Press [RETURN] to continue...

{TA} [ENTER]

PRINTER_NUMBER PRINTER_LO PRI
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR

{SYS} What is the printer name for the printer to be deleted?
(ex. reports1)

{TA}  {printername} [ENTER]

{SYS}
old    2:        where printer_location = '&1'
new   2:        where printer_location = '{printer name}'
1 row deleted.

{SYS}
printer  topsptr1  is  idle.  enabled  since  Fri  Aug  17  10:19:34  EDT  2001.
available.
printer  jimsptr2  is  idle.  enabled  since  Tue  Aug  28  16:11:41  EDT  2001.
available.

{IP ADDRESS}   TOPSNET1

Do you wish to delete this IP address from the /etc/hosts file?
```

NOTE: Depending on the circumstances, the TA can leave the IP address and alias printer name in the */etc/hosts* file or remove it by responding with a **y** response. In this example, the printer will be removed.

The system will remove the IP address and Device from the hosts file and return to the *Printer Maintenance Menu.*

NOTE: The IP address and device name of the printer will be removed from */etc/hosts* file.

The *Printer Maintenance Menu* is displayed:

```
*************************************************************************
*                                                                       *
*                        PRINTER MAINTENANCE MENU                       *
*                                                                       *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                       *
*        1.  Check Printer/Spool Status                                 *
*        2.  Add a Serial (Xyplex) Printer                              *
*        3.  Add a Network Printer                                      *
*        4.  Remove a Printer                                           *
*        5.  Cancel a Print Job                                         *
*        6.  EXIT                                                       *
*                                                                       *
*        NOTE: Xyplex server port must be configured for new printers.  *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide. *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  6 [ENTER]
```

After completing the removal of all desired printers, select option 6 to exit to the *TA Printer Maintenance Menu.*

3.5.5 CHECK PRINTER/SPOOLER STATUS

To check the printer status select option 4 from the *TA System Administration Main Menu.* The *Printer Maintenance Menu* is displayed.

```
*************************************************************************
*                                                                       *
*                        PRINTER MAINTENANCE MENU                       *
*                                                                       *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                       *
*        1.  Check Printer/Spool Status                                 *
*        2.  Add a Serial (Xyplex) Printer                              *
*        3.  Add a Network Printer                                      *
*        4.  Remove a Printer                                           *
*        5.  Cancel a Print Job                                         *
*        6.  EXIT                                                       *
*                                                                       *
*        NOTE: Xyplex server port must be configured for new printers.  *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide. *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  1 [ENTER]
```

Figure 3-22: Printer Maintenance Menu

The status for each printer indicates if it is idle, in use, when it was enabled, and if it is available is displayed. The following is an example of the *Check Printer/Spool Status* output that is displayed.

```
{SYS}
The following command displays the printer status:
printer reports1 is idle. enabled since Fri May 23 13:00:34 EST 2001.
available.
printer forms1 is idle. enabled since Fri May 23 13:01:01 EST 2001.
available.
```

3.5.6 CANCEL A PRINT JOB

To cancel a print job select option 5 from the *Printer Maintenance Menu* as depicted below.

```
*************************************************************************
*                        PRINTER MAINTENANCE MENU                       *
*                                                                       *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                       *
*        1.  Check Printer/Spool Status                                 *
*        2.  Add a Serial (Xyplex) Printer                              *
*        3.  Add a Network Printer                                      *
*        4.  Remove a Printer                                           *
*        5.  Cancel a Print Job                                         *
*        6.  EXIT                                                       *
*                                                                       *
*        NOTE: Xyplex server port must be configured for new printers.  *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide. *
*************************************************************************
Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  5 [ENTER]
```

Figure 3-23: Printer Maintenance Menu

A list of available printers is displayed.

```
{SYS} Name the printer associated with the print job?  \ex. reports1\

{TA}  {printername} [ENTER]
```

The system lists all print jobs currently in the queue for the printer selected. Cancel the print job that is no longer needed.

```
{SYS}
You have selected printer - {printer name}
{printername}-id#   root   86547    May 29  10:49  on  {printername}
Which printer job number would you like to remove?
For example  ->  reports1-123

{TA}  {printername}-id# [ENTER]

{SYS}
You selected job number - {printername}-id#
request "{printername}-id#" cancelled
{printername}-id#   root   86547    May  29  10:49  notifying user
```

The system will cancel the print job and return to the *Printer Maintenance Menu.*

3.5.6.1 CANCEL PRINTER JOB FROM THE PRINTER

A printer job may be canceled from the printer while printing. Perform the following steps:

```
{TA}  Press Menu 1

{SYS} Cancel Job

{TA}  Press Select 3

{SYS} Canceling Job

{SYS} Busy

{TA}  Press "GO" The green button, number 5

{SYS} Ready
```

3.5.8 ADD A SERIAL XYPLEX PRINTER

To define a serial Xyplex printer, log into the system as *tadmin* select option 4 from the *TA System Administration Main Menu* and press [ENTER] as shown in Figure 3-24.

```
*****************************************************************************
*                                                                           *
*                    TA SYSTEM ADMINISTRATION MAIN MENU                     *
*                                                                           *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                     *
*                                                                           *
*        1.  USER MAINTENANCE                                               *
*        2.  MAIL MAINTENANCE                                               *
*        3.  BACKUP MAINTENANCE                                             *
*        4.  PRINTER MAINTENANCE                                            *
*        5.  CHECK/KILL PROCESS OR USER ID                                  *
*            OR REBOOT/SHUTDOWN DBMS OR SYSTEM                              *
*        6.  SECURITY                                                       *
*        7.  EXIT                                                           *
*                                                                           *
*                                                                           *
*****************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:

{TA}  4 [ENTER]
```

Figure 3-24 TA System Administration Main Menu

To add a printer to the system, select **2** and press **[ENTER].**

```
**************************************************************************
*                        PRINTER MAINTENANCE MENU                        *
*                                                                        *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                  *
*                                                                        *
*        1.  Check Printer/Spool Status                                  *
*        2.  Add a Serial (Xyplex) Printer                               *
*        3.  Add a Network Printer                                       *
*        4.  Remove a Printer                                            *
*        5.  Cancel a Print Job                                          *
*        6.  EXIT                                                        *
*                                                                        *
*        NOTE: Xyplex server port must be configured for new printers.   *
*        Check in the TOPS SUN Administrator's Maintenance Users Guide.  *
*                                                                        *
**************************************************************************
Enter a number - 1, 2, 3, 4, 5, OR 6 - from the menu above:

{TA}  1 [ENTER]

{SYS} Is the Xyplex port configured? Y/N

{TA}  Y [ENTER]
{SYS}
What is the Xyplex printer port number? range 1-16

{TA}  {xyplex portnumber} [ENTER]

{SYS}
Listed below are the printers defined for the system.

Press [ENTER] to continue...

{TA}  [ENTER]
```

The system displays the list of printers defined within the TOPS server:

```
PRINTER_NUMBER PRINTER_LO PRI
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR

What is the device name for the new printer ex. reports1?

{TA}  {printername} [ENTER]

{SYS}
        KKFA4 loghost
        Xyplex1
        Xyplex2
```

From the display above, choose the desired Xyplex name that the printer will be assigned.

```
What is the Xyplex name? Ex. xyplex1
```

```
{TA}  {xyplex name} [ENTER]

{SYS} Available printer types:

1 - forms
2 - reports
3 - letter quality
4 - line printer

** Forms and Reports printers must be created separately. **

What type of printer is being added?

{TA}  {number of printer type} [ENTER]

{SYS} Press [ENTER] to continue...
```

The system will display the list of printers defined in the TOPS database, so that the TA can select the next appropriate number for the printer number.

```
PRINTER_NUMBER PRINTER_LO PRI
-------------- ---------- ---
             1 topsptr1   LZR
             2 trnrmptr1  LZR
             3 jimsptr2   LZR
What is the next printer number in TOPS?

{TA}  {printer number} [ENTER]

{SYS} Very quickly the system scrolls the following messages across the screen:

destination "{printername}" now accepting requests
printer "{printername}" now enabled.
The {printername} printer has been added.
```

The system will add the printer information to the printer table in the TOPS database and exit to the *Printer Maintenance Menu.*

3.6 TROUBLE SHOOTING PRINTERS

The steps outlined in this section will guide the TA in trouble shooting printer problems. If there are other problems not outlined in this section, call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 for further assistance.

Log onto the system as the *v7ora* user and "**su**" to the *root* user. Perform the following commands:

```
{SYS}   {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password
```

```
{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – root

{SYS} Password

{TA}  {root password}, [ENTER]

{SYS} {SYS} root@gbloc>
```

3.6.1 VERIFY PRINTERS IN THE PRINTERS DIRECTORY

Ensure that a printer directory exists for each defined printer. To view the printer directories in */etc/lp/printers*, perform the following commands:

```
{SYS} root@gbloc>

{TA}  cd /etc/lp/printers [ENTER]

{SYS} root@gbloc>

{TA}  ls -l [ENTER]
```

NOTE: There should be a subdirectory for each printer, similar to the listing below:

```
{SYS} root@gbloc>
total 8
drwxrwxr-x   2 lp       lp           512 May 23 13:16 reports1
drwxrwxr-x   2 lp       lp           512 May  1  2001 forms1
drwxrwxr-x   2 lp       lp           512 May 26 09:38 reports2
drwxrwxr-x   2 lp       lp           512 May 23 13:00 forms2
```

Ensure that the ownership, group, and permissions are set properly, as shown in the above example. If the directory exists but the ownership, group, and/or permissions are wrong, use the UNIX commands *chown, chgrp, and chmod* to correct them.

3.6.2 VERIFY EXISTENCE OF PRINTER FILES IN THE INTERFACES DIRECTORY

To ensure that a file exists for each defined printer in the /etc/lp/interfaces directory, perform the following commands:

```
{SYS} root@gbloc>

{TA}  cd  /etc/lp/interfaces [ENTER]

{SYS} root@gbloc>
```

```
{TA}  ls  -l [ENTER]

{SYS} root@gbloc>
total 120
-rwxrwxr-x   1 lp       lp         15082 May 23 13:07 reports1
-rwxrwxr-x   1 lp       lp         15082 May 23 13:07 forms1
-rwxrwxr-x   1 lp       lp         15082 May 23 13:01 reports2
-rwxrwxr-x   1 lp       lp         15082 May 23 13:00 forms2
```

Ensure that the ownership, group, and permissions are set properly, as shown in the above example. If the file exists but the ownership, group, and/or permissions are wrong, use the UNIX commands *chown*, *chgrp*, and *chmod* to correct them.

3.7 CHECK/KILL PROCESS OR USER ID OR REBOOT/SHUTDOWN DATABASE OR SYSTEM

This section provides procedures to check/terminate various components of user processes and system maintenance. Representative on-line menu/screens, command entries, interactive system messages, and report generation capabilities are documented accordingly. The section addresses the TA maintenance of TOPS background processes, active user IDs, reset/shutdown of the system and restart/shutdown of the database. Verification of the database status also is discussed in this section.

3.7.1 CHECK OR KILL TOPS PROCESSES

A process is a uniquely identified program. To begin checking a process, access the *Check/Kill Process or UserID Menu*, depicted below:

Select option 5 from the *TA System Administration Main Menu*. The *Check/Kill Process* or *UserID Menu* is displayed.

```
*************************************************************************
*                                                                       *
*                    CHECK/KILL PROCESS OR USERID MENU                  *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  CHECK/KILL TOPS PROCESSES                                  *
*        2.  CHECK/KILL ACTIVE USER IDS                                 *
*        3.  REBOOT/SHUTDOWN SYSTEM                                     *
*        4.  RESTART/SHUTDOWN DATABASE                                  *
*        5.  EXIT                                                       *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, OR 5 - from the menu above:
```

Figure 3-25: Check/Kill Process or UserID Menu.

To kill a TOPS process select option 1 and press **[ENTER]**.

The active TOPS processes are displayed. Possible processes that could be running in the background are as follows:

```
switch.sh          start.sh
backup.db          backup_wk
whist_one          whist_two
proc_loi.sh        update_tdr.sh
reins_tdr.sh       start_orp.sh
del_all_vcv.sh     del_rate.sh
outexp.sh          ppso_off.sh
install.sh         tcawd.sh
```

If processes are running in the background, the system will display the processes and ask that you quit this feature, try again later, or kill the process.

NOTE: If any SWIT or backup processes are still running in the background, allow them to complete before terminating.

```
{SYS} detected XX processes running in the background.
xxx xxxxx
xxx xxxxx
xxx xxxxx
```

If no processes are running in the background, a message will display on the screen that there are no processes; "There are no major background process running!" Otherwise, you will be asked to select each process you wish to kill in reverse order.

```
{SYS} Select, which processes you, want to kill.

{TA}  {process id number to terminate} [ENTER]
```

3.7.2 CHECK/KILL ACTIVE USER IDS

If a user's terminal is locked up, or the TA is preparing to reset or shutdown the database or system, check or kill a user ID by using the *TA Check/Kill Process or User ID Screen*. To check or kill a user's process, determine the user's process id. Some processes spawn other processes; all of the user's processes must be identified before killing processes.

To begin checking a process, access the *Check/Kill Process or User ID Menu*, displayed in Figure 3-26:

```
*************************************************************************
*                                                                       *
*                    CHECK/KILL PROCESS OR USERID MENU                  *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  CHECK/KILL TOPS PROCESSES                                  *
*        2.  CHECK/KILL ACTIVE USER IDS                                 *
*        3.  REBOOT/SHUTDOWN SYSTEM                                     *
*        4.  RESTART/SHUTDOWN DATABASE                                  *
*        5.  EXIT                                                       *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, OR 5 - from the menu above:
```

Figure 3-26: Check/Kill Process or User ID Menu

To kill a user process select option 2 and press **[ENTER].** The system will prompt for a specific user ID.

```
{SYS} Enter the Username to be killed:

{TA}  {username} [ENTER]

{SYS} User {username} killed.
```

If no users are on the system at the present time, the system will end this feature and return to the *Check/Kill Process or UserID Menu*. Otherwise, the system kills the user's process and displays the *Check/Kill Process or UserID Menu.*

3.7.3 REBOOT/SHUTDOWN THE SYSTEM

The system should be shutdown once each week to clear the */tmp* directory, remove any hung processes, flush the system buffers, and reset the pointers to files and directories. In order to do this, you need to perform a system reboot. The TA must logon to the console as root, then '*su'* to the *tadmin* user.

```
{SYS} {GBLOC} login:

{TA}  root [ENTER]

{SYS} Password

{TA}  {root password} [ENTER]

{SYS} root@gbloc>
```

Access the *Check/Kill Process or UserID Menu* depicted below.

```
*************************************************************************
*                                                                       *
*                     CHECK/KILL PROCESS OR USERID MENU                 *
*                                                                       *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                *
*                                                                       *
*        1.  CHECK/KILL TOPS PROCESSES                                  *
*        2.  CHECK/KILL ACTIVE USER IDS                                 *
*        3.  REBOOT/SHUTDOWN SYSTEM                                     *
*        4.  RESTART/SHUTDOWN DATABASE                                  *
*        5.  EXIT                                                       *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, OR 5 - from the menu above:
```

Figure 3-27: Check/Kill Process or UserID Menu

Before the system is reset, ensure that all users are logged off the system and that no TOPS scripts/processes are running in the background.

To reboot the system, select option 3 and press **[ENTER].**

The system checks for active users and TOPS processes on the system before it will allow a reboot or shutdown. If there are active users or TOPS processes on the system, the system will display these and display the *Check/Kill Process or User ID Menu.*

```
{SYS}
Checking for active processes on the System.
Checking for active Switcher scripts ...

Checking for active Backup scripts ...

Checking for active Users ...
12:19pm  up 15 day(s),  1:38,  1 user,  load average: 0.00, 0.01, 0.04
user     tty           login@  idle   JCPU   PCPU  what
user1    pts/0        12:17pm                     w
test1    pts/1        12:23pm                     oracleT P:4096,8,11,
tester   pts/5        12:26pm                     oracleT P:4096,8,11,
```

If any user other than *root* or *tadmin* is on the system, have the user log off before performing the system reboot or shutdown process. If there are no active users or TOPS processes, the system asks the TA to reboot or shutdown the system.

```
{SYS} Do you want to [R]eboot or [S]hutdown the system?
      Remember that shutdown will require you to boot from the
      console.  With restart, wait 5 minutes and login.
      NOTE that these two choices will kill this User ID.
      You can still just hit the Enter  to skip both.

{TA}  [R] [ENTER]
```

By pressing **[R]**, you will activate the reboot script. The reboot script shuts down the TOPS

database and the system processes and then re-starts the system processes, to include the print service and the TOPS database, and brings the system to multi-user mode.

By pressing **[S]** the TA can activate the shutdown script, which will shutdown the TOPS database and system processes, and bring the system to single user mode. The TA can then power off the system.

If the TA powers off the system, it will automatically boot to multi-user mode and start the TOPS database once the power is turned back on.

3.7.4 RESTART/SHUTDOWN THE DATABASE

The database may need to be shutdown because of storms, periodic power outage or installation of new version of TOPS, etc. In this case, you will use the "Restart/Shutdown Database" procedure within the *Check/Kill Processes or User IDs* function. To shutdown just the database, access the *TA Check/Kill Process or User ID Screen* displayed in Figure 3-28.

```
*************************************************************************
*                                                                       *
*                    CHECK/KILL PROCESS OR USERID MENU                  *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  CHECK/KILL TOPS PROCESSES                                  *
*        2.  CHECK/KILL ACTIVE USER IDS                                 *
*        3.  REBOOT/SHUTDOWN SYSTEM                                     *
*        4.  RESTART/SHUTDOWN DATABASE                                  *
*        5.  EXIT                                                       *
*                                                                       *
*************************************************************************
Enter a number - 1, 2, 3, 4, OR 5 - from the menu above:
```

Figure 3-28: Check/Kill Process or UserID Menu

NOTE: Before the database is shutdown, ensure that all users are logged off the system and that no scripts/processes are running in the background. Refer to paragraph 3.7.1 and 3.7.2 for specific instructions.

```
{TA}  4 [ENTER]
```

The system checks for active users and TOPS processes in the database before it will allow a restart or shutdown. If there are any active users or TOP processes in the database, the system will display these processes and display the *Check/Kill Process or User ID Menu.*

```
{SYS}
Checking for active Switcher scripts ...

Checking for active Backup scripts ...
```

```
Checking for active Users in the Database.
12:19pm  up 15 day(s),  1:38,  1 user,  load average: 0.00, 0.01, 0.04
user     tty           login@  idle   JCPU   PCPU  what
user1    pts/0        12:17pm                     w
test1    pts/1        12:23pm                     oracleT P:4096,8,11,
tester   pts/5        12:26pm                     oracleT P:4096,8,11,
```

If any users other than *root* or *tadmin* are on the system, have them log off before performing any TOPS Database operation! If there are no active users or TOPS user processes running in the database, the system asks the TA to restart or shutdown the database.

```
{SYS}
Checking for active Backup scripts ...
Checking for active Users in the Database.

If any users other than root or tadmin are on the system,
then have them log off before performing any TOPS Database operation!
Do you want to [R]estart or [S]hutdown the database?

{TA}  [S] [ENTER]
```

By pressing **[S]**, the script is activated to display the Oracle processes and then shuts down the TOPS database.

NOTE: This command shuts down the database only, not the UNIX part of the Server.

```
{SYS}
Database closed.
Database dismounted.
ORACLE instance shut down.
SQLBDA complete.
```

When the database shutdown is complete, the system will automatically go back to the *Check/Kill Process or UserID Screen,* with options to exit or re-start the database.

```
{TA}  4 [ENTER]

{SYS} Do you want to [R]estart or [S]hutdown the database?

{TA}  [R] [ENTER]
```

By pressing **[R]**, the script to restart the database is activated. When the database is brought back up, the system displays the Oracles processes and the *Check/Kill Process or User ID Screen* is displayed.

From this point, the TA can exit the *TADMIN MENU* screens or continue with other functions.

3.8 SECURITY INTRODUCTION

3.8.1 PURPOSE OF COMPUTER SECURITY PROGRAMS

The purpose of computer security programs is to protect important information processed and stored on computer systems. Malicious or unintentional corruption of data is expensive to correct and slows down or stops processing. The mission of TOPS could be degraded significantly should this occur. Computer systems are becoming increasingly accessible due to an increase in Internet availability and activity. As Internet access increases, the potential for malicious computer break-ins increases and should be guarded against.

3.8.2 TOPS SECURITY REQUIREMENTS

The security requirements for this functionality can be found in the Memorandum of Agreement between TOPS and BDM International Inc. (BDM), signed March 19, 1999 and the Security Software Design Description (SDD) Supplement, Change 2, dated April 27, 1999.

The primary security requirements are audit trails and logins, OS monitoring, and password management. All functions create reports that are viewable on-line and printable. Report descriptions, information about the creation of passwords, and guidelines on when to report suspicious activity are also available on-line.

3.8.2.1 TA SECURITY ROLES/RESPONSIBILITIES

It is the responsibility of the TA to periodically execute the security functions and interpret the results and reports. The TA has the responsibility of reporting security incidents to security managers as soon as they are noted. If the TA has Internet browsing capabilities, he/she should periodically browse the Computer Emergency Response Team (CERT) Coordination Center web site at http://www.cert.org for more information about security.

3.8.2.2 TOPS SECURITY MENUS

The TA Security module is used to perform periodic security checks on TOPS servers. The security checks can be performed daily, weekly, or monthly. Access to the *TA Security Main Menu*, can be done remotely from a workstation or at the system console.

To log onto the system as the *tadmin* user, perform the following:

At the system console as shown below:

```
{SYS} GBLOC login

{TA}  root [ENTER]

{SYS} Password

{TA}  {root password} [ENTER]

{SYS} root@GBLOC>

{TA}  su – tadmin [ENTER]
```

To login remotely from a workstation, use *v7ora* and *su* to *tadmin*:

```
{SYS} GBLOC login

{TA}  v7ora [ENTER]

{SYS} Password

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@GBLOC>

{TA}  su – tadmin [ENTER]

{SYS} Password

{TA}  {tadmin password} [ENTER]
```

In both cases, the screen shown in Figure 3-29 is displayed.

```
*************************************************************************
*                    TA SYSTEM ADMINISTRATION MAIN MENU                 *
*                                                                       *
*                    PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                       *
*        1.  USER MAINTENANCE                                           *
*        2.  MAIL MAINTENANCE                                           *
*        3.  BACKUP MAINTENANCE                                         *
*        4.  PRINTER MAINTENANCE                                        *
*        5.  CHECK/KILL PROCESS OR USER ID                              *
*            OR REBOOT/SHUTDOWN DBMS OR SYSTEM                          *
*        6.  SECURITY                                                   *
*        7.  EXIT                                                       *
*************************************************************************

Enter a number - 1, 2, 3, 4, 5, 6 OR 7 - from the menu above:
```

Figure 3-29: TA System Administration Main Menu

Select option 6 and press **[ENTER]**

The *TA Security Main Menu* is displayed as shown in Figure 3-30.

```
**************************************************************************
*                                                                        *
*                          TA SECURITY MAIN MENU                         *
*                                                                        *
*                     PLEASE CHOOSE ONE OF THE FOLLOWING                 *
*                                                                        *
*        1.  RESET SECURITY AND DELETE REPORTS                           *
*        2.  CHECK INTEGRITY OF SYSTEM FILES                             *
*        3.  FIND CRACKABLE PASSWORDS                                    *
*        4.  CHECK PASSWORDS                                             *
*        5.  CHECK USER ENVIRONMENTS                                     *
*        6.  CHECK FOR LOGIN FAILURES AND PERFORM LOGIN AUDIT            *
*        7.  CHECK LOGIN BANNER                                          *
*        8.  VIEW SECURITY REPORTS                                       *
*        9.  PRINT SECURITY REPORTS                                      *
*        10.  VIEW ON-LINE SECURITY INFORMATION BASE                     *
*        11.  EXIT BACK TO TADMIN MAIN MENU                              *
*                                                                        *
**************************************************************************
Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 OR 11 - from the menu above:
```

Figure 3-30: TOPS TA Security Main Menu

3.8.2.3 RESET SECURITY AND DELETE REPORTS

Option 1, this function deletes all security reports, all OS Automated Security Enhancement Tool (ASET) reports, and ASET master files containing snapshots of file attributes. This function reduces disk utilization and prevents system file integrity check reports from reporting normal file differences.

This function will only display the last date the security was reset if the file */opt/tops/security/reset.date* exists. If you select this function and see the message similar to Figure 3-32, then you must manually delete the reset.date file to force another reset.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, OR 11 - from the menu
above:

{TA}  1 [ENTER]
{SYS}
Resetting security...
Checking reset status...
Security was already reset on: Mon Nov 23 07:46:35 EST 1998
```

Figure 3-31: Reset Message - Security Already Reset

If you select this function and see the message contained in Figure 3-32, then the security reports and ASET master files were deleted.

```
{SYS}
      Resetting security...
      Checking reset status...
      Removing security reports and ASET files...
```

Figure 3-32: Reset Message - Security Messages Removed

No other interaction is required. You may view or print the Reset and Purge Report as described in Section 3.8.3.1.

3.8.2.4 CHECK INTEGRITY OF SYSTEM FILES

This function uses the OS ASET program. If the ASET software does not exist, it will report that back to you. If a master snapshot of the system files attributes does exist, ASET software will compare current file attributes with those of the master snapshot. If differences are discovered, they will be reported. If a master snapshot does not exist i.e., security has been reset it will create a new one. It has two different outputs. One output or report states that a new master checklist was created and the other report states the differences if any that were found. No other interaction is required.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, OR 11 -
from the TOPS TA Security Main Menu:

{TA}  2 [ENTER]
```

If ASET files are not on the system, you will receive messages similar to the ones depicted below.

```
{SYS} Performing System File Checks.....
      Checking for existence of ASET files.....
      Updating ASET configuration file.....
      Can't open /opt/tops/security/asetenv.....
      /usr/aset/aset:/tmp/asetlog: cannot execute....
```

Figure 3-33: Integrity of System Files - ASET Not **Found Messages**

If ASET files exist, you will receive messages similar to the ones depicted below.

```
{SYS} Performing System File Checks.....
      Checking for existence of ASET files.....
      Updating ASET configuration file.....
      Waiting for ASET to finish.....
      Please be patient .....
      ASET has completed processing.....
      Preparing ASET report.....
```

Figure 3-34: Integrity of System Files - ASET Processing

No other interaction is required. You may view or print the Files Integrity Report as described later in this guide.

3.8.2.5 FIND CRACKABLE PASSWORDS

This function uses Crack 5.0, which reads the password files and tries to guess user passwords. If passwords are "cracked" or guessed, the TA must contact the user and ask him/her to change to a more secure one. Creating password is described in Section 3.9.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, OR 11 -
from the TOPS TA Security Main Menu:

{TA}  3 [ENTER]
```

The *Crack Management Menu*, as depicted below.

```
Crack 5.0 Management Menu
        1  Start cracking passwords
        2  Put crack to sleep
        3  Wakeup crack
        4  Stop cracking passwords and create report
        5  Create report only
        6  Check crack status
        7  Go back to security menu

Enter a number – 1, 2, 3, 4, 5, 6, or 7 – from the main menu.

{TA}  1 [ENTER]
```

Figure 3-35: Crack 5.0 Management Menu

A message like the one displayed in Figure 3-36 is displayed if Crack 5.0 is not already running. This message indicates that passwords are being guessed. The results will be mailed to the users *root* and *tadmin***.**

WARNING: The reports and e-mail generated by this function will most likely contain valid userids and passwords. Safeguard the reports and e-mails appropriately.

```
{SYS} Password checking will be processed in the background……

      Making sure that crack is reset.  Please be patient...
```

Figure 3-36: Password Cracking Message – Starting

Option 2, puts crack to sleep and can only be selected if crack is running. If crack is running and option 2 is selected, output should be similar to the message below.

```
{SYS} Putting crack to sleep....
```

Figure 3-37: Password Cracking Message – Putting Crack to Sleep

Only one instance of Crack 5.0 can be running at the same time. If Crack 5.0 is running when menu option 3 is selected, the message below will appear.

```
{SYS} Crack is not sleeping....
```

Figure 3-38: Password Cracking Message - Crack 5.0 Still Running

If Crack is asleep when option 3 is selected, the message below is displayed.

```
{SYS} Waking up Crack....
```

Figure 3-39: Password Cracking Message – Waking Up Crack

Select option 4, stop-cracking passwords and the message below is displayed.

```
{SYS} Making sure that crack is reset. Please be patient.
```

Figure 3-40: Password Cracking Message – Stop Cracking Passwords

Option 5, create report only, displays output similar to the message below.

```
{SYS} The following user ids had crackable passwords.
      Press [ENTER] to continue.
                        Crackable Passwords Report

      Thu May 10 16:44:31  EDT 2001
      The following userids had crackable passwords:

      Test1 [test1]
      Test2 [test2]
      Test3 [test3]
      Test4 [test4]
      Test5 [test5]
      Test6 [test6]
      Test9 [test9]

      Press [RETURN] to continue……..
```

Figure 3-41: Password Cracking Message – Create Report Only

Option 6, check crack status, displays information on the status of the program. Output will be similar to Figure 3-42.

```
{SYS} Crack is running.
      Crack started on: [DATE]
      Current time is: [DATE]

{TA}  [ENTER]
```

Figure 3-42: Password Cracking Message – Check Crack Status

Option 7 is the last option in the *Crack 5.0 Management Menu*. When it is selected, the system will return to the *Security Menu*.

No other interaction is required. You may view or print the *Crackable Password Report* as described later in this guide.

3.8.2.6 CHANGE PASSWORDS

To change a password manually at a system prompt perform the following steps:

```
{TA or other user} passwd {USERID} [ENTER]

{SYS} passwd:  Changing password for {userid}
      Old password:

NOTE: If you have userid number 0, i.e. if you are a Super-user, you will not
be prompted for your old password.

{TA or other user} {old password} [ENTER]

{SYS} New password:

{TA or other user} {new password} [ENTER]

{SYS} Re-enter new  password:

{TA or other user} {new password} [ENTER]
```

3.8.2.7 CHECK PASSWORDS

This is option 4 on *TA Security Main Menu*. This function checks to make sure that all userids have passwords and reports password attributes. It uses the password command to obtain the data. There is only one message associated with this function.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, OR 11 - from the menu
above:

{TA}  4 [ENTER]

{SYS} Checking passwords.....
```

Figure 3-43: Checking Passwords

No other interaction is required. You may view or print the General Password Report as described in Section 3.8.3.4.

3.8.2.8 CHECK USER ENVIRONMENTS

This function also uses ASET. It checks the critical environment variables for root, the PATH variable, directory permissions, and UMASK variables. It also reports the integrity of user and group accounts. This function may take thirty minutes or longer, but you can login or remain logged on for the duration.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11 - from the menu
above:
```

```
{TA}  5 [ENTER]
```

If ASET files are not on the system, you will receive messages similar to the ones depicted below.

```
     Checking user environment.....
     Checking for existence of ASET files.....
     ASET security software does not exist.....
     no checks with ASET can be performed.....
     Contact the TOPS PMO help desk.....
```

Figure 3-44: Checking User Environment - ASET Not Found Messages

If ASET files are on the system, you will receive messages similar to those depicted below.

```
     Checking user environment...
     Checking for existence of ASET files...
     Updating ASET configuration file...
     Waiting for ASET to finish...
     Please be patient...
     ASET has completed processing...
     Preparing ASET report...
```

Figure 3-45: Checking User Environment - ASET Processing

No other interaction is required. You may view or print the User Environment Report as described in Section 3.8.3.5.

3.8.2.9 CHECK FOR LOGIN FAILURES AND PERFORM LOGIN AUDIT

This function checks for the existence of logs that enable tracking of login failures. The fifth failed attempt will be recorded automatically by the system. It will create a log if one does not exist. Selection of this menu item will report login failures, login auditing, and switch user su logging activity.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 OR 11 - from the menu
above:

{TA}  6 [ENTER]
```

Figure 3-46, shows a typical screen display when menu item 6 is selected.

If login failures do not exist, the second line in Figure 3-47 will not be displayed.

```
{SYS} Checking Login logs.....
      Login failures exist, adding to report.....
      Adding login/logout records to report.....
      Adding switched user records to report....
```

Figure 3-46: Login Check Messages - Log Files Exist

If the appropriate log file that enables login failure logging does not exist, a typical set of messages that will appear is contained in Figure 3-47.

```
{SYS} Checking Login logs.....
      Login failure logs empty or not found.....
      Logs were reset.....
      Adding login/logout records to report.....
      Adding switched user records to report.....
```

Figure 3-47: Login Check Messages - Log Files Missing

No other interaction is required. You may view or print the Login Failures and Audit Report as described in Section 3.8.3.6.

3.8.2.10 CHECK LOGIN BANNER

This function checks the login banner that is displayed before users log into the system. It makes sure that the data file exists, and contains the appropriate information. Messages similar to those contained in Figure 3-48 are displayed.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 OR 11 - from the menu
above:

{TA}  7 [ENTER]

{SYS} Checking login banner.....
      Login banner checked.....
```

Figure 3-48: Banner Check Messages

No other interaction is required. You may view or print the Banner Report as described later in this guide.

3.8.2.11 VIEW SECURITY REPORTS

This function allows the TA to view the security reports on line. If the report does not exist, it means that the security was recently reset or the corresponding function has not been executed since the software was installed. This guide contains descriptions of each report. Only one example will be given for this functionality. Repeat the following steps for each type of report.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 OR 11 - from the TA
Security Main Menu:

{TA}  8 [ENTER]
```

The *View Report Selection Menu* is displayed, as shown in Figure 3-49.

```
   **********************************
   *      VIEW REPORT SELECTION     *
   *                                *
   *  1)  RESET AND PURGE REPORT    *
   *  2)  FILES INTEGRITY REPORT    *
   *  3)  CRACKABLE PASSWORD REPORT *
   *  4)  GENERAL PASSWORD REPORT   *
   *  5)  USER ENVIRONMENT REPORT   *
   *  6)  LOGIN FAILURES AND AUDIT  *
   *      REPORT                    *
   *  7)  BANNER REPORT             *
   *  8)  GO BACK TO MAIN MENU      *
   *                                *
   **********************************
Enter a number 1, 2, 3, 4, 5, 6, 7 or 8:

{TA}  1 [ENTER]
```

Figure 3-49: View Report Selection.

The report shown in Figure 3-50 is a typical report. Note that the system displays "**Press [ENTER] to continue...**", this message indicates the end of the report. Pressing **[ENTER]** brings the user back to the *View Report Selection* menu. If there is more information than will fit on the screen, the message "**--More-- 10%**" is displayed. Press the space bar to scroll down the report or press **q** to quit. After pressing **q** you will be prompted to press **[ENTER]** as indicated above.

```
User Initiated Security Reset/Purge Results Report
**************************************
      Mon Mar 20 06:17:56 EST 2000

      Removing security and ASET files.....

      Press [ENTER] to continue.....
```

Figure 3-50: Sample Report

No other interaction is required. You may print the report as described in the following Section.

3.8.2.12 PRINT SECURITY REPORTS

This function allows the TA to print the security reports. If the report does not exist, it means that the security was recently reset or the corresponding function has not been executed since the software was installed. There are two sub-menus to this function. One sub-menu is for selecting a printer and the other is for selecting the latest report or all reports. Only one example will be given for this functionality. Repeat the following steps for each type of report.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, OR 11 - from the
Security Main Menu.

{TA}  9 [ENTER]
```

The report selection menu shown in Figure 3-51 is displayed.

```
     **********************************
     *     PRINT REPORT SELECTION     *
     *                                *
     *  1)  RESET AND PURGE REPORT    *
     *  2)  FILES INTEGRITY REPORT    *
     *  3)  CRACKABLE PASSWORD REPORT *
     *  4)  GENERAL PASSWORD REPORT   *
     *  5)  USER ENVIRONMENT REPORT   *
     *  6)  LOGIN FAILURES AND AUDIT  *
     *      REPORT                    *
     *  7)  BANNER REPORT             *
     *  8)  GO BACK TO MAIN MENU      *
     *                                *
     **********************************
  Enter a number 1, 2, 3, 4, 5, 6, 7 or 8:

{TA}  1 [ENTER]
```

Figure 3-51: Print Report Selection

The next menu that is displayed is shown in Figure 3-53, *Number of Reports*. Selecting **1** will print the most current report. Selecting **2** will print all the reports for the previously selected report type.

```
     ******************************
     *   SELECT NUMBER OF REPORTS  *
     *                             *
     *   1)  LATEST REPORT         *
     *   2)  ALL REPORTS           *
     *   3)  GO BACK TO REPORTS    *
     *                             *
     ******************************

     Enter a number 1, 2, or 3:

{TA}  1 [ENTER]
```

Figure 3-52: Number of Reports

The last sub-menu for printing reports is used to select a printer. After performing the previous entry, you will see a menu similar to the one shown below.

```
     ************************************************************
     * THE FOLLOWING IS A LIST OF AVAILABLE PRINTERS ON YOUR SYSTEM  *
     ************************************************************
TOPSRPT
SRARPT

     Please enter printer name and press [RETURN]
                       or
     Type 'Q' or 'q' to quit and press [RETURN]:

{TA}  {printername} [ENTER]
```

Figure 3-53: Printers

If after selecting a printer, the report does not exist or is empty, you'll see the message similar to the one depicted below.

```
{SYS} Banner check report empty or not found.....
```

Figure 3-54: Report Empty

If the report exists and has data in it, you will see the messages similar to the one depicted below.

```
{SYS} Printing report: /opt/tops/security/reports/032000.reset.rpt
      request id is dayrpts1-2454 1 files
```

Figure 3-55: Printing

No other interaction is required. You may repeat the above steps and print other reports as well.

3.8.2.13 VIEW ON-LINE SECURITY INFORMATION BASE

The On-Line Security Information Base contains descriptions of reports, advice on when to report suspicious activity, whom to report it to and advice on selecting secure passwords.

```
{SYS} Enter a number - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 OR 11 - from the menu:

{TA}  10 [ENTER]
```

The menu depicted in Figure 3-57 is displayed.

```
     **********************************
     *    ON-LINE INFORMATION BASE    *
     *       FOR TOPS SECURITY        *
     *                                *
     *  1)  DESCRIPTION OF REPORTS    *
     *  2)  WHEN TO REPORT SUSPICIOUS *
     *      ACTIVITIY                 *
     *  3)  CREATING SECURE PASSWORDS *
     *  4)  GO BACK TO MAIN MENU      *
     *                                *
     **********************************
  Enter a number 1, 2, 3 or 4:

{TA}  1 [ENTER]
```

Figure 3-56: On-Line Information

Figure 3-58 shows a typical display example for a description of the reports. Menu items 1, 2, and 3

all use the OS *more* command. Note that the system may display "Press **[ENTER] to continue...**". This message indicates the end of the report. Pressing **[ENTER]** brings the user back to the on-line information menu. If there is more information than will fit on the screen, the message similar to "**-- More-- 10%**" is displayed. Press the space bar to scroll through the information or press **q** to quit. After pressing **q,** you will be prompted to press **[ENTER]** as indicated above.

```
                    DESCRIPTION OF TOPS SECURITY REPORTS

NOTE:  For all reports.  If the report was not found or is empty, that means
that the corresponding security function was not executed and/or the TOPS
Security was reset and purged.

1.  RESET AND PURGE REPORT.  This report indicates when TOPS Security was
reset.  The date shown on the report indicates when system log files, TOPS
Security Reports and ASET reports were purged to empty or deleted.
**********
**********
2.  FILES INTEGRITY REPORT.  This report is provided by the ASET
utility program.  It will show the before and after attributes of files that
have changed since the last system snapshot was taken.  If the report
contains:

no checklist master - comparison not performed.
... Checklist master is being created now. Wait ...
--More--16%

{TA}  q [ENTER]
```

Figure 3-57: Reports

No other interaction is required. A description of each report is contained in the next sub-section of this guide. Menu selection 2, When to Report Suspicious Activity, is described in Section 3.10 of this guide. Menu selection 3, Creating Secure Passwords, is described in Section 3.9 of this guide. Menu selections 2 and 3 operate in the manner that was described above using the *more* command.

3.8.3 DESCRIPTION OF SECURITY REPORTS

Each report is described in detail in the following paragraphs.

3.8.3.1 RESET AND PURGE REPORT

This report indicates when TOPS Security was reset. The date shown on the report indicates when systems log files, TOPS Security Reports and ASET reports were purged to empty or deleted. Figure 3-59 provides an example.

```
     User Initiated Security Reset/Purge Results Report
     ****************************************
     Mon Nov 23 07:46:27 EST 1998

     Removing security and ASET files.....
```

Figure 3-58: Reset and Purge Report

The sample report in Figure 3-57 above indicates that the user initiated the last reset. If a 14-day automatic CRON Job initiated the reset, the title will be "CRON Job Security Reset/Purge Results Report".

3.8.3.2 FILES INTEGRITY REPORT

This report is provided by the ASET utility program. It will show the before and after attributes of files that have changed since the last system snapshot was taken. If the report contains:

```
"no checklist master - comparison not performed.
... Checklist master is being created now. Wait ...
... Checklist master created."
```

It means that there was no snapshot, and that a new one was created. This information indicates that TOPS Security was recently reset and purged. If a snapshot was current, and changes were made to the */etc/hosts* file for example, the report would contain a message similar to the information shown in Figure 3-60.

```
Here are the differences in the checklist.
< lines are from the master;
> lines are from the current snapshot

66c66
< -r-xr-xr-x 1 root other 2022 Apr 15 12:08 /etc/hosts  64442 4
---
> -r-xr-xr-x 1 root other 2027 Apr 22 14:04 /etc/hosts  64633 4
```

Figure 3-59: File Differences

The < indicates the entry was from the master snapshot and > indicates the entry was from what was found changed on the current system.

3.8.3.3 CRACKABLE PASSWORD REPORT

This report will contain userids whose passwords have been cracked. The cracked passwords are contained in brackets **[ ]**. If crackable passwords are identified, the user must be contacted to change his or her password. If the crackable password report is empty or not found, that could mean that the Crack program is still running or that TOPS Security was recently reset and purged.

3.8.3.4 GENERAL PASSWORD REPORT

This report contains password attributes for all userids. Figure 3-61 shows a typical output.

```
     Password Statistics Section
     ***********************
     PS=Passworded  LK=Locked  NP=no Password

     never=Never changed or never expires

                  Chng       Max
     Userid      Status     Date   Days
     ******      *****     ****    ****
     root       PS         never   never
     daemon     LK         never   never
```

Figure 3-60: Password Statistics

If the status is NP, indicating no password, the user account should be suspended immediately and remain suspended until an appropriate password is created by the user.

3.8.3.5 USER ENVIRONMENT REPORT

This report contains information about critical environment variables for root, the PATH variable, directory permissions and UMASK variables. It also reports the integrity of user and group accounts. A sample output is provided in Figure 3-62.

```
*** Begin User And Group Checking ***
Checking /etc/passwd ...

Warning! Duplicate uid: 0 tadmin

Checking /etc/shadow ...

... end user check.

Checking /etc/group ...
... end group check.

*** End User And Group Checking ***
     Critical Environment Variables Section
     ************************************
*** Begin Environment Check ***

Warning! umask set to umask 022 in /etc/profile - not recommended.

Warning! "." is in path variable!
         Check /.profile file.
*** End Environment Check ***
```

Figure 3-61: Environment Report

All warnings should be corrected as soon as possible. Periods found in paths can be removed from the appropriate file using the vi editor. Duplicate userids are actually numbers and not the user name. Duplicate userids should be changed carefully so that each user has a unique userid. File ownership and other attributes can change when correcting these problems.

3.8.3.6 LOGIN FAILURES AND AUDIT REPORTS

This report displays when login failures occurred more than five times. It shows data from the */var/adm/logins* file. It also shows when and how long users were logged in. All login failures should be investigated by questioning the user. If login failures are being reported for an unknown userid, the MSRC and local security managers should be contacted. Login history data that shows unusual times that users were on the system should be noted. Also, users who were on for more than eight consecutive hours should be noted. This would indicate users who do not log off when their duty day has ended. Unusual login times and long sessions should be investigated by talking to the appropriate user. See Figure 3-63 for an example of the report.

```
      Login Failures and Auditing Report
      **********************************

      Thu Nov  1 14:35:53 EST 2001

      Login Failures Section
      **********************

      Login failures were found in log files.

      Login failures from /var/adm/loginlog:

      testusr:/dev/pts/1:Fri Jun 15 11:47:10 2001
      testdev:/dev/pts/1:Tue Jun 19 08:54:44 2001

      Login Failures From /var/adm/messages:

      Login/Logout Section
      ********************

shirley   pts/1        999.99.99.999    Thu Nov  1 14:04 - 14:28  (00:23)
root      ftp          111.111.11.1     Thu Nov  1 13:48 - 13:48  (00:00)
root      ftp          123.123.123.12   Thu Nov  1 13:38 - 13:38  (00:00)
dbausr    pts/2        222.222.22.222   Thu Nov  1 11:34 - 11:43  (00:09)

      Switch User Section
      *******************

SU 11/03 09:29 + ??? root-v7ora
SU 11/03 09:51 + ??? root-v7ora
SU 11/03 10:36 + ??? root-v7ora
```

Figure 3-62: Login Failures and Audit Report

3.8.3.7 BANNER REPORT

This report simply shows when the login security banner was checked last or modified.

3.9 CREATING SECURE PASSWORDS

Much of the following information was taken from the documentation that came with Crack Version v5.0, Alec Muffett alecm@crypto.dircon.co.uk.

3.9.1 GENERAL

Secure passwords are not that easy to create or remember. However**,** do not write them down**.** In addition, password generators should not be used to create passwords.

3.9.2 PASSWORD RULES

Each password must have at least eight characters. Only the first eight characters are significant. PASSLENGTH is found in */etc/default/passwd* and is set to 8.

Each password must contain at least two alphabetic characters and at least one numeric or special character. In this case, "alphabetic" refers to all upper or lower case letters.

Each password must differ from the user's login name and any reverse or circular shift of that login name. For comparison purposes, an upper case letter and its corresponding lower case letter are equivalent.

New passwords must differ from the old by at least three characters. For comparison purposes, an upper case letter and its corresponding lower case letter are equivalent.

3.9.3 VARIETY IN PASSWORDS

The only way to get a reasonable amount of variety in your passwords is to make them up. Work out some flexible method of your own which is not based upon:

- Modifying any part of your name or name + initials
- Modifying a dictionary word
- Acronyms
- Any systematic, well-adhered-to algorithm.

For example, using the first letters of a phrase and some numbers:

I like peanut butter and jelly sandwiches, becomes **ilpbajs1**.

3.9.4 UNACCEPTABLE PASSWORDS

Never use passwords like the following:

```
alec7       - based on the user's name and too short
gillian     - girlfriend's name and in a dictionary
naillig     - ditto, backwards
PORSCHE911  - in a dictionary
12345678    - in a dictionary also people can easily watch you type it
qwertyui    - ditto
abcxyz      - ditto
0ooooooo    - ditto
Computer    - just because it's capitalized doesn't make it safe
wombat6     - ditto for appending some random character
6wombat     - ditto for pre-pending some random character
merde3      - even for French words
mr.spock    - in a sci-fi dictionary
zeolite     - in a geological dictionary
ze0lite     - corrupted version of a word in a geological dictionary
ze0l1te     - ditto
Z30L1T3     - ditto
```

3.10 REPORTING SUSPICIOUS ACTIVITIES

3.10.1 GENERAL

Anytime you are unsure whether or not to report an incident, you should report it.

3.10.2 WHEN TO REPORT INCIDENTS

Report the following activities to the appropriate Office of Primary Responsibility (OPR):

- Users who repeatedly have no password
- Users whose passwords are cracked more than twice
- Unexplained changes to system files
- Repeated login failures and failures during non-business hours
- Unexplained events such as unscheduled reboots and annoying messages
- Warnings from security reports you can not remedy
- Repeated e-mail from unknown sources.

3.10.2.1 WHO TO CONTACT

You may have to contact several different people to remedy security incidences. Your Unit Security Office may need to be informed. The MSRC is a good place to ask for assistance. Local Area Network (LAN) and Wide Area Network (WAN) administrators may need to be contacted. Security incidents should also be reported to your supervisor.

SECTION 4. TOPS DATA ARCHIVING SYSTEM (TDAS)

4.1 INTRODUCTION

The TOPS Data Archiving System TDAS is an online process that can be used to remove old records from the database, store the records on tape, cleanup the database, retrieve records when and if necessary, and help keep the system operating more efficiently. The TDAS process requires direct interaction with the system by the TA. The volume of records to be archived will affect the time required to perform this process. For example, the first execution of a TDAS archiving cycle may take substantially longer than subsequent cycles. Five 4-mm 120-meter tapes are required for archiving purposes. TDAS software determines and maintains the amount of tape space available. TDAS software ensures that a complete set of records is written to only one tape. The archived data will not be split across tapes.

4.2 TOPS ARCHIVING PROCESS

TOPS archiving is an automated menu driven process that the TA may need to periodically perform. TDAS Archive is a two-step process, TESTARCH and ARCHIVE.

- TESTARCH - indicates potential records for archiving and provides disk space requirement for processing the specific database archive. The TESTARCH process allows the user to do a sample view and/or print the possible records eligible for archiving.
- ARCHIVE – The actual process archives the records to the tape.

To perform the archiving process the TA needs to log onto the system and follow the procedures below.

4.2.1 TA LOG ON

NOTE: Do NOT perform TDAS from the system console**.**

Log on to the system from a workstation as *v7ora* and switch user to *root,* then switch user to *tdas* using the following:

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – root [ENTER]

{SYS} Password:

{TA}  {root password}  [ENTER]

{SYS}  #

{TA}  su - tdas [ENTER]

{SYS} Password:

{TA}  {tdas password} [ENTER]
```

The *Welcome to TDAS* menu is displayed as depicted in Figure 4-1.

```
                        WELCOME TO TDAS


                  PLEASE CHOOSE ONE OF THE FOLLOWING

       1. TDAS ARCHIVE MENU SYSTEM.
       2. TDAS DE-ARCHIVE.
       3. VIEW ARCHIVE STATUS LOG
       4. EXIT

          ENTER 1,2,3 OR 4 :
```

Figure 4-1: Welcome to TDAS Menu

Use the *Welcome to TDAS* screen to select an option. Information on this screen is automatically retrieved and cannot be changed. It is a selection screen only. Select option 1 to enter the *TDAS Archive Menu System*, and press **[ENTER]**.

The *Full System Backup Warning* screen is displayed.

NOTE: Use the Daily Backup not the Full System Backup.

```
{SYS}:  You are about to enter the TDAS Archive Main Menu!  If the user
intends to perform an archive make sure that a recent full system backup is
performed as instructed in the TDAS Manual.  To continue type 'y' and press
[ENTER], or to quit now type 'n' and press [ENTER].

{TA}  y [ENTER]
```

The TOPS *Keyboard Selection Menu* is displayed. Based on the terminal type, choose the appropriate keyboard type. For PCs choose option 2.

```
*****************************************************************************
*                                                                           *
*            PLEASE CHOOSE THE KEYBOARD TYPE YOU ARE USING                  *
*                                                                           *
*  1. STANDARD KEYBOARD (286 OR TERMINAL)                                   *
*  2. 101 ENHANCED KEYBOARD (386 OR 486)                                    *
*                                                                           *
*        Enter 1 OR 2 :                                                     *
*****************************************************************************
{TA}  2 [ENTER]
```

Figure 4-2: TOPS Keyboard Menu

The TOPS *Database Access Menu* is displayed.

```
SQL*Forms Run Form:  Release 3.0.16.12.9 – Production

Copyright © Oracle Corporation 1979, 1994.  All rights reserved.

Using Oracle Toolkit Version 01.00.20.03.01 Production
Using PL/QL Version 01.00.45.03.01 Production

                    SECURE DATABASE:  ENTER NAME AND PASSWORD

                   Username:
                   Password:

      Press ESC k at any time to show function keys
```

Figure 4-3: TDAS Database Access Menu

The username and password is *tdas.*

```
{TA}  tdas [ENTER]

{TA}  tdas [ENTER]
```

The screen *FOR OFFICIAL USE ONLY* is displayed.

```
                    FOR OFFICIAL USE ONLY

The Transportation Operational Personal Property Standard System TOPS INTEL
server equipment will be used for official use only.  TOPS equipment will be
used in conjunction with official duties as assigned by the Installation
Transportation Officer. The installation or use of software applications
beyond the realm of TOPS, without prior approval from the TOPS configuration
Control Board, Headquarters, Military Traffic Management Command, is strictly
prohibited.  The use of tobacco products and consumption of food or beverages
in and around TOPS equipment and the storage media library is not authorized.

Please Press NEXT FIELD to continue…..

{TA}  [ENTER]
```

Figure 4-4: For Official Use Only

The *Privacy Warning* is displayed.

```
                        PRIVACY WARNING

The Transportation Operational Personal Property Standard System TOPS stores,
processes, displays, and creates output products that contain data within the
scope and spirit of the Privacy Act of 1974.  Protect personal data from
unauthorized disclosures, destruction, or alteration.  Personal data is
considered unclassified "highly sensitive" and will be handled in accordance
with DOD 5400.11-R and other applicable military service directives.
Personal data collected from a member will be limited to the level of
accessibility and distribution that is necessary for the movement, storage,
processing and payment of personal property shipments and includes
settlements of claims.  Requests for personal data from an activity not
acting as an agent for the United States Government shall be referred to your
Privacy Act Officer for final Disposition.

Please press NEXT FIELD to continue:

{TA}  [ENTER]
```

Figure 4-5: PRIVACY Warning

The *TDAS Main Menu*, Figure 4-6, is displayed. The TA is now ready to begin the selection process within *TDAS Main Menu.*

```
                            TDAS Main Menu

            ARCHIVE    :   Archive Shipment/Member order Data

            TDASQRY    :   Query/Comment on Archived Data

            HISTORY    :   Display Archive Tape History

            CPTAPE     :   Copy Archive Tape

            TESTARCH   :   Count of Eligible Records to be Archived
Enter word Here:
```

Figure 4-6: TDAS Main Menu

Use the *TDAS Menu Screen* by pressing the up/down arrow s to move to the desired word, then press select F-9 to select that option.

4.2.2 PERFORM TESTARCH

The TA must perform an archiving test on the system to determine the number of records that can be archived. It is recommended to not try to archive more than 25,000 records at one time. Before attempting to archive the system the TA should perform the TESTARCH procedures to both view and print the number of records eligible to be archived. Remember the date can be set to time-slice back in time from the date entered. If the system has never been archived the TA may want to use trial dates in the early nineties to get a count. The TA can log in as outlined above and proceed to the *TDAS Main Menu,* Figure 4-6, then perform the following:

```
{TA}  [DOWN ARROW ] to TESTARCH

{TA}  [SELECT] or [F9] to select the TESTARCH word.
```

The *TESTARCH* screen is displayed in Figure 4-7.

```
Count of Eligible Records to be Archived
--------------------------------------------------------------------------

     Do You Wish to View the Report on Your Screen (Y/N):

     Enter the Reports Printer Number (1, 2, 3, etc.)   :

     Enter the Number of Copies (defaults to 1)         : 1

     Enter the Archive Date (defaults to current date)   :02-NOV-01

                       Press EXIT to return to the menu.
```

Figure 4-7: TESTARCH Screen

4.2.2.1 VIEW THE TESTARCH PROCESS:

To perform the view TESTARCH process the TA can log in as outlined above and from the TESTARCH screen (Figure 4-7) perform the following:

```
{TA}  y [ENTER]

{SYS}Cursor is positioned on the date field.
```

The system will default to the current system date. The date can be changed to 'time-slice' the period for records to be checked for possible archiving. The number of records and the length of time of archiving will depend on the size of the database, the number of records to be archived and the date used to start the archive process. The system will search for eligible records six months back from the date entered. The TA should enter the desired archive date in Oracle date format or

accept the system default date.

NOTE: TDAS system will not archive any records that are less than 6 months old, regardless of the archive date selected.

4.2.2.2 ARCHIVE CRITERIA

The TDAS software determines the number of actual shipments to be archived. Table 4-1 displays the criteria used in support of archiving in general by Status Code format.

Table 4-1: Basic Criteria for TDAS

In General by Status Code
Where the shipment status code equals 'CA', the shipment is eligible to be archived 90 days after the shipment status date, and if all other member shipments are archivable, then archive that member's shipments/orders data.
Where the shipment status code equals 'CN', and today's date is at least 180 days beyond the member requested pickup date, and if all other member shipments are archivable, then archive that member's shipments/orders data.
Where the shipment status code equals 'RT' or 'RD', and if all other member shipments are archivable, then archive that member's shipments/orders data.
Where shipment status code equals 'PU' and method of shipment equals 'INTER' or 'INTRA' and required delivery date plus 180 <= sysdate.
Where status code equals 'IB' and requested pickup date +10 <= sysdate or requested pickup date is null and shipment status date +10 <= sysdate.
Where status code equals 'IC' and requested pickup date +10 <= sysdate or requested pickup date is null and shipment status date +10 <= sysdate.
Where status code equals 'IR' and requested pickup date +10 <= sysdate or requested pickup date is null and shipment status date +10 <= sysdate.
Where status code equals 'RT' and requested pickup date +10 <= sysdate or requested pickup date is null and shipment status date +10 <= sysdate.
Where status code equals 'AC' and requested pickup date +10 <= sysdate or requested pickup date is null and shipment status date +10 <= sysdate.

```
     Where status code equals 'CL' or 'DL' and method of shipment equals
     'INTER' or 'INTRA' and gbl number equals dtgbl shipment evaluation gbl
     number and dtgbl shipment evaluation date transmitted to origin +30 <=
     sysdate.

     Method of shipment equals 'INTER' or 'INTRA' and gbl number equals dtgbl
     shipment evaluation gbl number and dtgbl shipment evaluation date
     transmitted to origin is null and requested pickup date + 547 <=
     sysdate.
```

```
{TA}  {date} [ENTER]

{SYS} Report is Currently being Generated ....
```

The system will take several minutes to gather the information based on the date provided for the TESTARCH and the number of records eligible for archive, and bring the display to the screen. The eligible records to be archived by status code categories are displayed. The TA can press **[ENTER]** to view page two, and then press **[ENTER]** or **[SPACE BAR]** to see more of the display.

```
24-MAY-01       ELIGIBLE CARRIER PERFORMANCE RECORDS       PAGE 1

                   ARCHIVE AS_OF DATE    24-MAY-00
                   EFFECTIVE END DATE    30-SEP-99

    TYPE OF ARCHIVE                     COUNT
    ------------------------------      -----
    Carrier Performance Interstate          0
    Carrier Performance Intrastate          0
    QA Action Log                           0
    TGBL Carrier Log                        0
                                       ------
                                            0
Press <RETURN> to continue ...

{TA} [ENTER]
```

The system will display page two.

```
24-MAY-01             ELIGIBLE SHIPMENT RECORDS            PAGE 2

     TOTAL NUMBER OF SHIPMENT RECORDS:              104236


                   ARCHIVE AS_OF DATE    24-MAY-00

     TYPE OF ARCHIVE                                  COUNT
     -------------------------------                 ------
     AC - ACTIVE                                          0
```

```
     BK - BOOKED DPM                                    876
     BK - BOOKED MOBILE HOME                              0
     BK - BOOKED OTO                                      1
     CA - CANCELED                                      267
     CM - COMPLETED DITY                                372
     CN - COUNSELED                                     311
     DL - DELIVERED DITY                                  0
     DL - DELIVERED DPM                                 142
     DL - DELIVERED MH                                    0
     DL - DELIVERED OTO                                   0
     DOMESTIC RATE CYCLE                                420
     DPM - DIRECT PROCUREMENT METHOD                      0
     IB - IN BOOKING                                      0
     IC - IN COUNSELING                                 129
     INTERNATIONAL RATE CYCLE                           332
     IR - IN ROUTING                                      0
     LM - LOCAL MOVE                                      0
     NTS - NON-TEMPORARY STORAGE                        218
     PU - PICKED UP                                       0
     RD - ROUTED BUT not BOOKED                           0
     RM/RR - REMOTE AND RR                               82
                                                       ------
     NUMBER OF SHIPMENT RECORDS TO BE ARCHIVIED        3150

     This archive will require an estimated minimum of    25,325  kilobytes
     of space each on the opt directory hard disk and the backup directory
     hard disk; there appears to be  2418,667  kilobytes available on the
     opt directory hard disk and  5660,162 kilobytes available on the
     backup directory hard disk.

YOU SHOULD HAVE ENOUGH SPACE FOR THIS ARCHIVE; YOU MAY PROCEED

Press <RETURN> to continue ...
```

Figure 4-8: TESTARCH Display

```
{TA}  [ENTER]

{SYS} -- Press RETURN to return to SQL*Forms –

{TA}  [ENTER]
```

The system returns to the *TESTARCH* screen.

4.2.2.3 PERFORM THE TESTARCH PROCESS AND PRINT IT

TESTARCH will be performed in the background and a list of all eligible records to be archived is sent to a designated printer. To perform the view TESTARCH process and print it the TA can log in as outlined above and from the TESTARCH screen (Figure 4-7), perform the following:

```
{TA}  n [ENTER]

{TA}  {printer number} [ENTER]
```

```
{TA}  {number of copies} [ENTER]

{TA}  {archive date} [ENTER]

{SYS} Press [RETURN] to return to SQL*Forms –

{TA}  [ENTER]

{SYS} "Report is being generated".  Press [EXIT] to return to the menu.

{TA}  [EXIT] or [F10]
```

4.2.2.4 CHECK TAPE HISTORY

The system can be checked to see if the system has ever been archived by using the HISTORY word from the *TDAS Main Menu*. The tape history can be both viewed and printed to a designated printer. To perform this procedure the TA can log in as outlined above and proceed to the *TDAS Main Menu*, Figure 4-6, then perform the following:

```
{TA}  [DOWN ARROW] to HISTORY

{TA}  [SELECT] or [F9] to select the HISTORY word.
```

The system will display the *Archive Tape History* screen as shown below:

```
TDAS     HISTORY                    Display Archive Tape History
--------------------------------------------------------------------------------
                   Report of Archive Tape History


Do You Wish to View the Report on Your Screen Y/N:

 Enter the Reports Printer Number 1, 2, 3, etc.:

Enter the Number of Copies defaults to 1:
                       Press EXIT to return to the menu.
```

Figure 4-9: Display Archive Tape History

To view the history perform the following:

```
{TA}  y [ENTER]
```

The system will initiate a process that will search the system and determine if the system has ever been archived, and if it has bring a similar display to the screen as shown below:

```
22-MAY-01                    HISTORY OF TDAS TAPES
PAGE 1

Tape Number   File Name      Date      Record Count
-----------   -------------- --------- ------------
          1   TDAS19980618   18-JUN-98        21008
          2   TDAS19980811   11-AUG-98         2082
          3   TDAS19990127   27-JAN-99         7008
          4   TDAS19990323   23-MAR-99         2075
          5   TDAS19991001   01-OCT-99         7939
          6   TDAS19991231   31-DEC-99         4211
          7   TDAS20000131   31-JAN-00         1548
          8   TDAS20000228   28-FEB-00         1184
          9   TDAS20000331   31-MAR-00         1139

Press <RETURN> to continue ...
```

Figure 4-10: HISTORY of TDAS Tapes Display

Press **[ENTER]** twice to return to the *Display Archive Tape History*, Figure 4-9, to print the tape history.

To print the tape history the TA, using the *Display Archive Tape History* screen in Figure 4-9 performs the following:

```
{TA}  n [ENTER]

{TA}  {printer number} [ENTER]

{TA}  {number of copies} [ENTER]
```

The system will print the tape history to the designated printer. Press **[F10] or [EXIT]** to return to the *TDAS Main Menu.*

4.3 ARCHIVE RECORDS

The actual archive process is a detailed process that may take over two hours to complete. Currently it takes approximately three hours to archive 25,000 records. It is recommended to not try to archive more than 25,000 records at one time. Before attempting to archive the system the TA should perform the TESTARCH procedures to both view and print the number of records eligible to be archived. Remember the date can be set to time-slice back in time from the date entered. If the system has never been archived the TA may want to use some trial dates in the early nineties to get a count. The TA should also check the tape history (HISTORY) keyword to see if the system has ever been archived or when it was last archived. The TA should also check with the MSRC before proceeding, to determine if archiving should be performed, and to schedule a time to have least impact on the site operations.

NOTE: Ensure a blank 4mm tape is placed in the tape drive and that paper is in the designated printer.

NOTE: The TA should ensure users do not access the system during the archive process. If any user accesses the database during the archive process, the system database may be corrupted!

To archive the system, log onto the server as outlined above and proceed to the *TDAS Main Menu* Figure 4-6. Perform the preliminary preparations of checking and printing; the tape history, and the TESTARCH. Perform the following from the *TDAS Main Menu*:

```
{TA} [DOWN ARROW] to ARCHIVE

{TA} [SELECT] or [F9] to select the ARCHIVE word.
```

The screen *Archive Selected TOPS Records to Tape* is displayed.

```
                    ARCHIVE SELECTED TOPS RECORDS TO TAPE


     Enter the reports printer number (1, 2, 3, etc)

     Enter the number of copies (defaults to 1)

     Enter the Archive date (defaults to current date)

     Press Exit to return to the menu
```

Figure 4-11: Archive Selected TOPS Records to Tape

Ensure a blank 4 mm tape is placed in the tape drive and that paper is in the designated printer. Perform the following:

```
{TA}  {printer number} [ENTER]

{TA}  {number of copies} [ENTER]

{TA}  {archive date} [ENTER]

{TA}  [EXIT] or [F10] to return to the TDAS Main Menu

{TA}  [EXIT] or [F10] to return to Welcome to the TDAS Menu
```

The automated archive script process will then determine the eligible records; extract, process, write the records to tape, and print the records.

```
{TA}  3 [ENTER]
```

During the archive process, the TA can continuously monitor the Archive process log by selecting

the *View Archive Status Log* from the *Welcome to the TDAS Menu* Figure 4-1.

The 4 mm tape ejects automatically when all archived records have been written to the tape. The TA should label this tape appropriately, for example, TDAS Tape 1, 2, or 3, TDAS20000331 for 31-MAR-00.

NOTE: Do NOT manually eject the tape!

The Archive process is not complete until the log file displays "All TDAS Archive Processes are now complete". Review *TDAS.log* in */backup/data*. Choose Option 3 from the first *TDAS Menu*. The tape may eject before the message displays, so the TA should monitor the status log until the message "TDAS Archive Process is now Complete" is displayed.

The process is NOT done when the tape ejects. The process may continue for as much as three hours depending on the size of your database.

NOTE: The archive will print out a hard copy all records archived and sent to tape. This may require a large amount of paper depending on the size of the archive. Ensure there is an ample supply of paper for the printer.

4.4 TDAS DE-ARCHIVE PROCESS

The de-archive process accesses archived data which was stored on a 4-mm tape. Log on to the system as the *v7ora* user and *su* to *tdas*:

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – root [ENTER]

{SYS} Password:

{TA}  {root password}  [ENTER]

{SYS}  #

{TA}  su - tdas [ENTER]
```

```
{SYS} Password:

{TA}  {tdas password} [ENTER]

{SYS} The WELCOME TO TDAS menu screen is displayed.
```

Select option 2 to enter into the *TDAS DE-ARCHIVE* process.

```
      WELCOME TO TDAS

PLEASE CHOOSE ONE OF THE FOLLOWING

1.    TDAS ARCHIVE MENU SYSTEM

2.    TDAS DE-ARCHIVE

3.    VIEW ARCHIVE STATUS LOG

4.    EXIT

Enter 1, 2, 3 OR 4

{TA}  2 [ENTER]

{SYS} The "TDAS De-archive" message is displayed.
```

Figure 4-12: WELCOME TO TDAS

```
TTTTTTT DDDDD        A         SSSSS
   T    D    D      A A       S     S
   T    D    D     A   A      S
   T    D    D    A     A      SSSSS
   T    D    D   A AAAAA A          S
   T    D    D  A         A  S      S
   T    DDDDD  A           A   SSSSS

This process will de-archive (restore from archive) all information about an
individual based on the social security number of that person.

Press Enter (Return) to start the de-archival process.
```

Figure 4-13: TDAS De-archive

```
{TA}  [ENTER]

{SYS}
Enter the Social Security Number of the individual you wish to de-archive
Enter as <NNN-NN-NNNN> or <NNNNNNNNN> : :

{SYS} The screen containing the "De-archive Data Entry" message is displayed

{TA}  {social security number} [ENTER]
```

Figure 4-14: De-archive Data Entry

The requested archive history is read from the TOPS Server archive history as shown below.

```
{SYS} The following archive history was found for:

      CLAUS, SANTA
```

The *Archive History* screen is displayed.

NOTE: If no archived social security number is found, press **[CTRL C]** to quit *the De-archive Data Entry* screen and return to the *Welcome to TDAS* screen and begin the TDAS process selection again.

```
TAPE# ARCHIVE-DATE  ARCHIVENAME   ORDERS#    SHIPMENT#  GBL#    METHOD  STATS
----  -----------   -----------   -------    ---------  ----    ------  -----
   1   25-DEC-98   TDAS19981225   NP-984        1                DITY    CM



Do you wish to de-archive all information for this person?

Enter Y or N ::
```

Figure 4-15: Archive History

If you wish to de-archive the displayed data record, locate the tape by the tape number requested and put it in the tape drive, type **y** or **yes** and press **[ENTER]**.

```
{TA}  Insert the tape by number indicated, into the tape drive on the TOPS
server.

{TA}  y [ENTER]
```

The complete data record for this individual will be de-archived from the tape.

```
{SYS} The following is a summary of the records de-archived

RECORD COUNT      TABLE NAME
1                 DD1299
1                 MEMBER_CONTACT
1                 MEMBER_ORDERS
1                 ORDERS_MASTER
1                 PRIOR_SHIPMET
2                 SHIPMENT
3                 SHIPMENT_CODE_COST_EST
2                 SHIP_ADDRESSES
1                 SHIP_STORAGE
2                 SHIP_WEIGHTS

Please review the de-archive log in   /backup/data/DE_ARCH189.log

Press any to return to TDAS Menu

{TA}  [ENTER]
```

The system returns to the *TDAS Menu* where the TA can exit or do additional TDAS work.

For additional TDAS information, see the Revised ICP 5.6.3 Archival TDAS SOFTWARE USER MANUAL SUM, dated August 4, 1998.

For Questions and scheduling of archiving, contact the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

SECTION 5. EXPORTS/IMPORTS

5.1 EXPORTS/IMPORTS DEFINITION

An export/import is the movement of files into or out of the TOPS database. The export process happens during the daily backup process by existing scripts. Occasionally a manual export or import is necessary to correct database table information. To extract data from the database use the *exp* command. To import data into the database use the *imp* command.

5.1.1 FULL EXPORT OF TOPSDB USER TABLES FROM THE DATABASE

The following is an example of a full export of the data owned by the TOPS database user '*topsdb*' from the database.

NOTE: First you may need to do a full system backup if directed to do so by MSRC.

To export the database, you will need to export the data to the */backup/data/Daily.dmp* file. To begin the export procedure:

```
{SYS} GBLOC login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

Change to the directory where the database dump file is to be stored:
 ,i.e., /backup/data
```

NOTE: Do not store export files in */opt/v7ora***.**

```
{TA}  cd  /backup/data [ENTER]

{TA}  exp topsdb/{topsdb password} [ENTER]

{SYS} Export version n.n
      Enter array fetch buffer size: 4096 >

{TA}  1024000 [ENTER]

{SYS} Export file:  expdat.dmp >

{TA}  Daily.dmp [ENTER]

{SYS} 2(Users), or 3(Tables): 2(U) >

{TA}  [ENTER]
```

```
{SYS} Export grants yes/no: yes >

{TA}  [ENTER]

{SYS} Export table data yes/no: yes >

{TA}  [ENTER]

{SYS} Compress extents yes/no: yes >

{TA}  [ENTER]

{SYS} About to export TOPSDB's objects...
exporting snapshots
exporting snapshot logs
exporting job queues
exporting refresh groups and children
exporting database links
exporting sequence numbers
export cluster definitions

Export TOPSDB's tables ...
Exporting Table XXXX          XXX  Rows exported
Exporting Table XXXXX         XX X Rows exported
Exporting Table XXXXX         XX X Rows exported
Exporting Table XXXXX         XX X Rows exported
Exporting Table XXXXX         XX X Rows exported

{SYS} Export terminated successfully without warnings.
```

NOTE: The exporting message will appear for each table being exported. When the export is completed, the v7ora@gbloc prompt is displayed.

Either copy this export file to tape or continue with the instructions provided by the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 for the problem being resolved.

5.1.2 EXPORT SPECIFIC TABLES

The following is an example of exporting specific tables in a database. This will ONLY be done if directed by the MSRC.

```
{SYS} GBLOC login:

{TA}  v7ora [ENTER]

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>
```

Change to the directory where the file is to be stored. Do not store export files in */opt/v7ora*.

```
{TA}  cd {directory name} [ENTER]

{TA}  exp topsdb/{topsdb password}

{SYS} Export version n.n
Enter array fetch buffer size: 4096 >

{TA}  1024000 [ENTER]

{SYS} Export file:  expdat.dmp >

{TA}  {filename}.dmp [ENTER]

{SYS} 2(Users) or 3(Tables): 2(U) >

{TA}  T [ENTER]

{SYS} Export table data yes/no: yes >

{TA}  [ENTER]

{SYS} Compress extents yes/no: yes >

{TA}  [ENTER]

{SYS} About to export specified tables...
Table to be exported: RETURN to quit >

{TA}  {tablename} [ENTER]

{SYS} . exporting table {tablename} XX Rows exported
      Table to be exported:  RETURN to quit >

{TA}  {tablename} [ENTER]

{SYS} . Exporting Table {tablename}       XX Rows exported
      Table to be exported:  RETURN to quit >
      Continue entering table names until all needed tables are exported.
      When done exporting, press [ENTER]

{TA}  [ENTER]

{SYS} Export terminated successfully without warnings.
```

5.2 IMPORTS

Use the *imp* command to copy data into the TOPS database.

5.1.3 IMPORT AN EXPORT FILE

The following is an example of importing everything from an export file. If the export file contains a complete database export of TOPSDB tables, all of this data will be imported. If the export file only contains specified tables, then only that data will be imported.

```
{SYS} GBLOC login:
```

```
{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

Change to the directory where the export file resides.

{TA}  cd {directory name} [ENTER]

{TA}  imp topsdb/{topsdb password} [ENTER]
```

NOTE: If the file was exported by the database user, system, such as from a full system backup tape use the following command: **imp system/{system password} [ENTER].** Otherwise errors will occur and the system will exit back to the system prompt.

```
{SYS} Import file:  expdat.dmp >

{TA}  {filename}.dmp [ENTER]

{SYS} Enter insert buffer size minimum is 4096 30720>

{TA}  1024000 [ENTER]

{SYS} Export file created by EXPORT:V07.01.04
      List contents of import file only yes/no: no >

{TA}  [ENTER]

{SYS} Ignore create error due to object existence yes/no: yes >

{TA}  [ENTER]

{SYS} Import grants yes/no: yes >

{TA}  [ENTER]

{SYS} Import table data yes/no: yes >

{TA}  [ENTER]

{SYS} Import entire export file yes/no: yes >

{TA}  [ENTER]

{SYS} importing TOPSDB's objects into TOPSDB
      Importing table "XXX"   XX Rows imported
```

NOTE: This message will appear for each table being imported.

```
{SYS} Import terminated successfully without warning.
```

5.1.4 IMPORT SPECIFIC TABLES FROM AN EXPORT FILE

The following is an example of importing specific tables from an export file. Do this ONLY by direction of a MSRC representative.

```
{SYS} GBLOC login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]
```

Change to the directory where the export file resides.

```
{TA}  cd {directory name} [ENTER]

{TA}  imp topsdb/{topsdb password} [ENTER]
```

NOTE: If the file was exported by system manager such as from a full system backup tape the TA will need to use **imp system/{system password*}*.**

```
{SYS} Enter table names.  Null list means all tables for a user.
      Enter table name or . if done:
```

NOTE: This message is displayed so that the individual table name to be imported can be entered. This message will be repeated up to ten times in a single session, allowing for up to ten individual tables to be imported during this import process. If more than ten tables are to be imported, start the import process again. However, null list means all tables for a user will be imported.

```
{TA}  {tablename} [ENTER]
{TA}  {tablename} [ENTER]
{TA}  {tablename} [ENTER]

{SYS} Enter table names.  Null list means all tables for a user.
      Enter table name or . if done:

{TA}  . [ENTER]

{SYS} . . importing TOPSDB's objects into TOPSDB
      . . importing table "XXX"     XX Rows imported
      . . importing table "XXX"     XX Rows imported
      . . importing table "XXX"     XX Rows imported

      Import terminated successfully without warning.
```

When completed log into the database and check that the tables are there.

```
{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>
```

```
{TA}  select count(*) from itgbl_service; [ENTER]

{SYS} COUNT*
      ------
        8359

Or if you wanted to count the number of records in the shipment table.

{SYS} SQL>

{TA}  select count(*) from shipment; [ENTER]

{SYS} COUNT*
      ------
      115644
```

SECTION 6. CREATE TABLE AND COLUMN LISTINGS

The following procedures can be used to print a listing of all TOPS tables and the columns in each table or a listing of all TOPS column names with the tables. These listings should be reprinted every time a major change in the TOPS software occurs.

6.1 TABLE LISTINGS

6.1.1 CREATE THE TABLE LISTING COMMAND AND LIST

Sometimes a listing of all of the tables in the database and the columns that correspond with each table is needed. The commands to create such a listing are contained in this section.

Log onto to the system as *v7ora* and change to your home directory.

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{TA}  cd /export/home/acct/{username} [ENTER]

Enter SQL*PLUS and set the column heading off.

{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>

{TA}  set head off [ENTER]

{SYS} SQL>
```

Set the system to print the table names once regardless of the number of columns in each table. Enter the following commands to execute and create the TABLE listing:

```
{TA}  break on table_name skip 1 [ENTER]

{TA}  set pages [ENTER]

{SYS} SQL>

{TA}  select  table_name, column_name, data_type [ENTER]
      from all_tab_columns [ENTER]
      where owner = 'TOPSDB' [ENTER]
      order by table_name, column_name; [ENTER]
```

Give the statement a name, such as tables, and save it to your directory. This enables you to use this

command again at any time.

```
{TA}  save /export/home/acct/{username}/tables [ENTER]

{SYS} SQL>
```

This will save the above standard query language (SQL) query to a file *tables.sql* in your home directory. The system appends *.sql* to the name of your file when you execute a save command.

Set the spooler to receive the output of this command in a file. Now run the command. The command *spool* turns on the spooler and captures the result. It also appends *.lst* to the name of your file when you turn the spooler off.

```
{TA}  spool /export/home/acct/{username}/tab_col [ENTER]

{TA}  r [ENTER]
```

The system will redisplay the command and after several seconds, the listing of tables and columns will scroll by. The command is finished when the SQL> prompt is displayed. Turn off the spooler.

```
{TA}  spool off [ENTER]
```

Exit out to the UNIX command line and print this file.

```
{SYS} SQL>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

This file should be printed to a good quality printer. It will take several minutes to print. You should ensure sufficient paper is in the printer. You should also only print this file in the evening or during slow periods of system use.

```
{TA}  lp –d{printername} /export/home/acct/{username}/tab_col.lst [ENTER]
```

6.1.2 CREATE TABLE LISTING WITH SAVED COMMANDS

After a table listing has been created, use the save command to create table listings at any time. Below are the directions to create a table listing after the command has been saved.

Log onto the system as *v7ora* and change to your own directory.

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password:
```

```
{TA}  {v7ora password} [ENTER]

{TA}  cd /export/home/acct/{username} [ENTER]

Enter SQL*PLUS and set the column heading off.

{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>

{TA}  set head off [ENTER]

{SYS} SQL>
```

Set the system to print the table names once regardless of the number of columns in each table. Use the following command to create the TABLE listing:

```
{TA}  break on table_name [ENTER]

{TA}  set pages [ENTER]

{SYS} SQL>

{TA}  get /export/home/acct/{username}/tables [ENTER]

{SYS} SQL>
```

Turn on the spooler to receive the output of this command in a file and execute the command.

```
{TA}  spool /export/home/acct/{username}/tab_col [ENTER]

{TA}  r [ENTER]
```

The system will redisplay the command and after several seconds, the listing of tables and columns will scroll by. The command is finished when the SQL> prompt is displayed. Turn off the spooler.

```
{TA}  spool off [ENTER]
```

Exit out to the UNIX command line and print this file.

```
{SYS} SQL>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

This file should be printed to a line printer or letter quality printer. It will take several minutes to print. You should print this file in the evening or during slow periods of system use.

```
{TA}  lp –d{printername} /export/home/acct/{username}/tab_col.lst [ENTER]
```

6.2 COLUMN LISTING

6.2.1 CREATE THE COLUMN LISTING COMMAND AND LIST

There will be times when a listing of all the columns in the database with the names of these tables is needed. This type of listing is created with a different command than the table listing.

Log onto the system as *v7ora* and change to your own directory.

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password

{TA}  {v7ora password} [ENTER]

{TA}  cd /export/home/acct/{username} [ENTER]
```

Enter SQL*PLUS and set the column heading off.

```
{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>

{TA}  set head off [ENTER]

{SYS} SQL>
```

Set the system to print the column names once regardless of the number of tables in which the column belongs. You will need to enter, but not execute, the command to create the COLUMN listing.

```
{TA}  break on column_name skip 1 [ENTER]

{TA}  set pages [ENTER]

{SYS} SQL>

{TA}  select column_name, table_name, data_type [ENTER]
      from all_tab_columns [ENTER]
      where owner = "TOPSDB" [ENTER]
      order by column_name; [ENTER]

{SYS} SQL>
```

Save the statement to your directory. This enables you to use this command again at any time.

```
{TA}  save /export/home/acct/{username}/columns [ENTER]

{SYS} SQL>
```

```
Set the spooler to receive the output of this command in a file.  Then run
the command.
{TA}  spool /export/home/acct/{username}/col_tab [ENTER]

{TA}  r [ENTER]
```

The system will redisplay the command and after several seconds, the listing of tables and columns will scroll by. The command is finished when the SQL> prompt appears. Turn off the spooler.

```
{TA}  spool off [ENTER]
```

Exit out to the UNIX command line and print this file.

```
{SYS} SQL>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

This file should be printed to a good quality printer. It will take several minutes to print. You should ensure sufficient paper is in the printer. You should also only print this file in the evening or during slow periods of system use.

```
{TA}  lp –d{printername} /export/home/acct/{username}/tab_col.lst [ENTER]
```

6.2.2 CREATE A COLUMN LISTING WITH SAVED COMMANDS

After you have created a column listing once, you can use the saved commands to create column listings at any time. Below are the directions to create a column listing after the commands have been saved.

Log onto the system as *v7ora* and change to your own directory.

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password

{TA}  {v7ora password} [ENTER]

{TA}  cd /export/home/acct/{username} [ENTER]
```

Enter SQL*PLUS and set the column heading off.

```
{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>

{TA}  set head off [ENTER]
```

```
{SYS} SQL>
```

Set the system to print the column names once regardless of the number of tables listed for each column. You will need to execute the command to create the column listing.

```
{TA}  break on column_name [ENTER]

{TA}  set pages [ENTER]

{SYS} SQL>

{TA}  get /export/home/acct/{username}/columns [ENTER]

{SYS} SQL>
```

Set the spooler to receive the output of this command in a file. Then run the command.

```
{TA}  spool /export/home/acct/{username}/col_tab [ENTER]

{TA}  r [ENTER]
```

The system will redisplay the command and after several seconds of nothing on the screen, the listing of columns and tables will scroll by. The command is finished when the "SQL>" prompt appears. Turn off the spooler.

```
{TA}  spool off [ENTER]
```

Exit out to the UNIX command line and print this file.

```
{SYS} SQL>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

This file should be printed to a good quality printer. It will take several minutes to print. You should ensure sufficient paper is in the printer. You should also only print this file in the evening or during slow periods of system use.

```
{TA}  lp –d{printername} /export/home/acct/{username}/tab_col.lst [ENTER]
```

SECTION 7. TOPS ORPHANS REMOVAL SOFTWARE OPERATING PROCEDURES

7.1 INTRODUCTION

This section provides you with information and operating procedures to execute the TOPS Orphan Removal Software.

7.1.1 ORDERS SERIAL KEY ORPHANS

The ORDERS_SERIAL_KEY (OSK) is first defined in the ORDERS_MASTER table; there is one OSK for each set of Members-Orders the concatenation of MEMBER_SOCIAL_SECURITY_NUMBER and ORDERS_NUMBER. The majority of TOPS' data tables use OSK as a foreign-key. When used as a foreign-key, OSK substitutes for each set of Member-Orders. If a record with an invalid OSK is not related to a known set of Member- Orders, any data associated with it becomes meaningless. Because TOPS software references data through valid OSKs, any row with an undefined OSK is inaccessible. These invalid records are orphans. Specifically, these are referred to as OSK orphans.

7.1.2 SHIPMENT ORPHANS

The combination of OSK and SHIPMENT_NUMBER is the primary identifier for the SHIPMENT table and can be used as a foreign- to many related tables. The absence of a Shipment record for a particular OSK and SHIPMENT_NUMBER combination will make shipment orphans in the related tables. When their Shipment record is missing, any records in the related tables with that missing OSK/SHIPMENT_NUMBER combination become inaccessible. Similar to missing OSK orphans in the ORDERS_MASTER table, these are referred to as Shipment orphans.

7.2 MANUAL PROCEDURES

You may choose to execute the Orphan Removal Software at times other than the pre-scheduled dates provided in the crontab facility. Before execution of the Orphan Removal Software, check the status of the latest scheduled backup and any other processes accessing TOPS tables that may be running.

Once you have determined that no other processes are running, manual run procedures can begin. You may execute the Orphan Removal Software by entering a single command at the UNIX shell prompt. To do this, log into UNIX as root:

```
{SYS} {GBLOC} login:

{TA}  root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]

{SYS} root@gbloc>

{TA}  cd /usr/lib/orphan [ENTER]

{TA}  pwd [ENTER]

{SYS} /usr/lib/orphan

{TA}  nohup ./orphan.sh > orphan.log 2>&1 & [ENTER]
```

Running *orphan.sh* as a nohup command allows you to run the shell script as a background process and frees up the terminal so that you can perform other activities. Additionally, the file */usr/lib/orphan/orphan.log* is created as a log file for the current execution of the shell script. When the orphan script is complete, the message "Orphan Removal Complete" is displayed at the end of the *orphan.log* file. If this message is not displayed, wait a few more minutes and check the log file again.

7.3 REPORTS

The execution of the Orphan Removal Software by automated or manual procedures will generate two reports: OSK Deletion Count Summary, */usr/lib/orphan/report/oskrept.lst* for OSK orphans; and Shipment Orphan, */usr/lib/orphan/report/shiprept.lst* for Shipment orphans. These two reports are overwritten by each execution instance of the Orphan Removal Software.

7.3.1 OSK DELETION COUNT SUMMARY REPORT

The OSK Deletion Count Summary report contains table names in the first column and the OSK listed in the second column. A break is issued between tables and the number of OSK orphans contained in that table. The end of the report lists the total number of OSK orphans deleted. The OSK Deletion Count Summary Report layout is depicted in Figure 7-1.

```
OSK DELETION COUNT SUMMARY REPORT
--------------------------------------------------------------------------
ORPHAN TABLES           OSK

APPOINTMENT             4363
                        8890
                        8894
                        9145
********************
count                      4
```

Figure 7-1: OSK Orphan Deletion Count Summary Report

7.3.2 SHIPMENT ORPHAN REPORT

The Shipment Orphan report contains the SSN, Orders Number, Shipment Number, and Table Name. A break is issued between the SSN and number of shipment orphans contained in that table. The end of the report lists the total number of shipment orphans deleted. The Shipment Orphan report layout is depicted in Figure 7-2.

```
PAGE:     1
                            SHIPMENT ORPHAN REPORT

SSN             ORDERS #       SHIPMENT #     ORPHAN TABLES
-----------     ----------     ----------     ------------------------------
003-46-7611     0393           1              DD1299
***********                                   ------------------------------
count                                                                      1
136-24-3372      0851          2              DD1299
***********
count                                                                      1
039-38-0402                    3              DD1299
3431                           3              NTS_SHIPMENT_REFUSAL
***********
count                                                                      2
175-46-9830                    2              DD1299
168-89-9963                    2              NTS_SHIPMENT_REFUSAL
***********
count                                                                      2
```

Figure 7-2: Shipment Orphan Report

7.3.3 CLOSED DATE DELETION SUMMARY REPORT

The office closed dates, which are older than 180 days are deleted and listed in this report. The file is */usr/lib/orphan/report/officerpt.lst.*

```
CLOSED DATE DELETION SUMMARY REPORT

GBLOC       Closed Date
KAFQ        09-APR-95
            08-MAY-95
******
count               2

2 CLOSED DATE ORPHAN RECORDS DELETED.
```

Figure 7-3: Closed Date Deletion Summary Report

7.3.4 VIEW AND PRINT REPORTS

To view the reports, use the UNIX command *pg*. To print the reports log into UNIX as root.

```
{SYS} login:

{TA}  root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]

{TA}  cd /usr/lib/orphan/report [ENTER]

{TA}  pwd [ENTER]

{SYS} /usr/lib/orphan/report
```

To view the OSK Deletion Count Summary report and the Shipment Orphan Report, use the *pg* command. The *pg* command displays the file one page of information at a time. At the ":" prompt, press **[ENTER]** to advance to the next screen of text.

```
{TA}  pg oskrept.lst [ENTER]

{TA}  pg shiprept.lst [ENTER]
```

To print the OSK Deletion Count Summary report and the Shipment Orphan Report, use the *lp* command.

```
{TA}  lp -dprintername oskrept.lst [ENTER]

{SYS} print job id number

{TA}  lp -dprintername shiprept.lst [ENTER]

{SYS} print job id number

{TA}  exit [ENTER]
```

SECTION 8. TOPS SPOOLING AND DELETION OF RATE RECORDS PROCEDURES

8.1 INTRODUCTION

This section provides the TA with manual procedures to execute the TOPS shell script, *del_rate.sh,* to delete old rate cycle records, spool views, and print old rate records from tables. Currently an automated procedure will remove and delete old rates from the system.

8.2 OLD RATE CYCLE RECORDS

There is no need for old rate cycle records of carriers to be kept in the TOPS database. These old rate records occupy a great deal of space and slow down processing. All records older than 30 days of the previous rate cycle number will be moved to the /export/home/spool subdirectory as flat files with the extension of rate cycle numbers for future use as archive files and will be deleted from the database.

8.3 RUN PROCEDURES

The TA and authorized users have two options when running this shell: automated and manual run procedures. The automated procedures are the preferred method of execution, as this method requires very little intervention.

8.3.1 AUTOMATED PROCEDURES

This shell script is in the crontab facility, which is a UNIX shell scheduler that allows jobs to be executed at pre-scheduled intervals. Spooling of old rates records and deletion from tables are scheduled on the first Sunday of each month.

8.3.2 MANUAL PROCEDURES

You may choose to execute this program at times other than pre-scheduled dates provided in the crontab facility. Check the status of the latest scheduled backup and any other processes that access TOPS tables that may be running, see Section 3.7 for more information. Once it has been determined that no other TOPS processes are running, the manual procedures can begin. You may execute the *del_rate.sh* shell script by running it from the directory.

```
{SYS} {GBLOC} login:
{TA}  root [ENTER]
{SYS} password:
{TA}  {root password} [ENTER]
{SYS} root@gbloc>
{TA}  cd /opt/tops [ENTER]
{TA}  pwd [ENTER]
{SYS} /opt/tops
{TA}  nohup ./del_rate.sh >/tmp/delrate.log & [ENTER]
```

Running *del_rate.sh* with an ampersand & allows the shell script to run as a background process and frees up your terminal to perform other activities. If you prefer to run it in the foreground, the command would be *del_rate.sh* **[ENTER]**.

8.4 REPORTS

The execution of *del_rate.sh* will generate up to five reports if the report does not have any inter, intra, dom_mv, intl_mv, or itgbl, which contain old records from the corresponding, tables:

- dtgbl_interstate_service
- tgbl_intrastate_service
- dom_volume_move_service
- intl_volume_move_service
- itgbl_service

Upon creation of these reports the corresponding records will be deleted from related tables.

8.5 VIEWING AND PRINTING REPORTS

To view the reports, use the *pg* command. Log into UNIX, type the following commands.

```
{TA}  cd /export/home/spool [ENTER]
{TA}  pwd [ENTER]
{SYS} /export/home/spool
{TA}  pg {filename} [ENTER]
{TA}  lp -d {printername} {filename} [ENTER]
```

The filename syntax is the type of report followed by the rate cycle number. For example, inter.96-1, where inter is for the interstate rates and 96-1 is the rate cycle number.

SECTION 9. TROUBLE SHOOT WITH SQL*PLUS

9.1 INTRODUCTION

This section provides SQL trouble shooting procedures for common problems and issues that typically result in calls to the MSRC.

9.2 SET THE SQL*PLUS ENVIRONMENT

Log onto the system as *v7ora* and enter the SQL*PLUS utility program to do any of the procedures in this section. When working within SQL*PLUS, the SQL> prompt is displayed. Note that the procedures to login and out of SQL*PLUS are written in this sub-section only, but apply to all processes in this section. Apply these procedures as necessary.

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} password:

{TA}  {v7ora password} [ENTER]

{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL>
```

When you enter SQL*PLUS, the following two commands will be entered to ensure readability and retrieval of data:

```
{TA}  set pages [ENTER]

{TA}  set arraysize 1 [ENTER]
```

NOTE: All TOPS users are to avoid entering special characters during data entry (e.g., ! @ # $ % ^ & * ; : ?). Using these symbols causes problems when trying to print or when the data is being imported at the destination site.

Each time you want to exit SQL*PLUS, type **exit** and press **[ENTER]** and the system will return you to the UNIX environment.

```
{SYS} SQL>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

Enter **exit** and press **[ENTER]** to leave the UNIX environment and return to a login prompt.

```
{TA}  exit [ENTER]

{SYS} {GBLOC} login:
```

9.3 DETERMINE THE ORDERS_SERIAL_KEY

In order to trouble shoot problems with member or shipment data in SQL*PLUS, determine the ORDERS_SERIAL_KEY. The ORDERS_SERIAL_KEY is the member or the shipment record identifier. For a shipment record, the SHIPMENT_NUMBER must also be used as part of the identifier.

For each unique MEMBER_SOCIAL_SECURITY_NUMBER and ORDERS_NUMBER combination in the ORDERS_MASTER table, the system generates an ORDERS_SERIAL_KEY. This is the data element that you will use to search for a record in TOPS.

In the following commands, all data values must be enclosed in single quotes, '{value}', when an exact match is expected.

```
{SYS} SQL>

{TA}  select * from orders_master [ENTER]
      where member_social_security_number={'social security number'}; [ENTER]
```

The ORDERS_SERIAL_KEY will be the third data item retrieved from this Select statement. It will be a number.

9.4 CHANGE A SHIPMENT STATUS CODE

To change a shipment status code of IR (In Routing), IB (In Booking) or AC (Active) use the EDRECORD word in the TOPS application program. To change other shipment status codes, first determine the ORDERS_ SERIAL_KEY, as described in section 9.3. Then select the shipment record based on the ORDERS_SERIAL_KEY and the SHIPMENT_NUMBER.

In the following commands, all data values must be enclosed in single quotes, '{value}'. The variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY value that was retrieved in section 9.3.

```
{SYS} SQL>

{TA}  select orders_serial_key, shipment_number, shipment_status_code[ENTER]
      from shipment [ENTER]
      where orders_serial_key = {'orders serial'}; [ENTER]
```

After you ensure that you have the correct record, update the SHIPMENT_STATUS_CODE field.

It is VERY important that you include the where clause in every update statement.

In the following commands, all data values must be enclosed in single quotes, '{value}'. The variable {new shipment status code} refers to the new status code being set for this shipment. This must be entered in uppercase characters. The variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY value that was retrieved in section 9.3. The variable {shipment_number} refers to the number of this shipment for this member. This shipment number was displayed in the previous *Select* statement in this section.

```
{SYS} SQL>

{TA}  update shipment [ENTER]
      set shipment_status_code = {'new shipment status code'} [ENTER]
      where [ENTER]
      orders_serial_key = {'orders serial key' } [ENTER]
      and shipment_number = {'shipment number'}; [ENTER]
```

Ensure that the update worked. In the following commands, all data values must be enclosed in single quotes, '{value}'. The variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY value that was retrieved in section 9.3. The variable {shipment_number} refers to the number of this shipment for this member. This shipment number was displayed in the previous *Select* statement in this section.

```
{SYS} SQL>

{TA}  select orders_serial_key, shipment_number,shipment_status_code [ENTER]
      from shipment [ENTER]
      where orders_serial_key = {'orders serial key'} [ENTER]
      and shipment_number = {'shipment number'}; [ENTER]
```

If it appears that more than one record is updated or when in doubt instead of performing the *commit* command, perform the *rollback* command. This will put the old data back. Perform the following command:

```
{SYS} SQL>

{TA}  rollback; [ENTER]
```

After you verify that the change to the database is correct commit the changes to the database by performing the following command:

```
{SYS} SQL>

{TA}  commit; [ENTER]
```

9.5 RESOLVE GBL PRINTING PROBLEMS FROM WITHIN THE DATABASE

If a particular user cannot print GBLs, there is usually a problem with the data. The most common GBL data problem is that a special character, "#", has been entered in one of the address fields, e.g., Apt. #21.

You must discover which GBLs are not printing, correct the data in the shipment record, and clear the GBL_PRINT_TEMP table of these records. Search the GBL_PRINT_TEMP table for all records associated with the user who is trying to print. In the following statement, the variable {user's ORACLE login name} refers to the login name that the user types in to enter the database. This must be entered in uppercase characters.

```
{SYS} SQL>

{TA}  select * from gbl_print_temp [ENTER]
      where userid = {'users ORACLE login name'}; [ENTER]
```

Write down all of the GBL numbers that appear on the screen. The GBL_NUMBER will be the first data item displayed in each row.

To see if the problem is a "#" in the address field, first locate the corresponding record in the SHIPMENT table. Then write down the record's ORDERS_SERIAL_KEY and SHIPMENT_NUMBER. These values will be used in the next Select statement. In the following statement, the variable {gbl_number} refers to the GBL number in the output from the above statement.

```
{SYS} SQL>

{TA}  select orders_serial_key, shipment_number [ENTER]
      from shipment [ENTER]
      where gbl_number = {'gbl number'}; [ENTER]
```

Use the ORDERS_SERIAL_KEY and SHIPMENT_NUMBER to retrieve the corresponding record in the SHIP_ADDRESSES table. In the following statement, the variable {orders_serial_key} refers to the orders_serial_key retrieved in the previous statement. The variable {shipment_number} refers to the shipment_number retrieved in the previous statement.

```
{SYS} SQL>

{TA}  select * from ship_addresses [ENTER]
      where orders_serial_key = {'orders serial'}
      and shipment_number = {'shipment number'}; [ENTER]
```

If there are "#" symbols in the addresses or remarks block for this record, they must be corrected before attempting to print another GBL. You or the user can enter the BASIC program in the TOPS

application, update the addresses, and save the changes. If there are no "#" symbols in the record, call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

Before the GBL can be printed again, you must remove the current record from the GBL_PRINT_TEMP table. In the following statement, the variable {gbl_number} refers to the GBL number in the output from the above statement.

```
{SYS} SQL>

{TA}  delete from gbl_print_temp [ENTER]
      where gbl_number = {'gbl number'}; [ENTER]
```

Verify that the record is no longer in the GBL_PRINT_TEMP table. In the following statement, the variable {gbl_number} refers to the GBL number in the output from the above statement.

```
{SYS} SQL>

{TA}  select * from gbl_print_temp [ENTER]
      where gbl_number = {'gbl number'}; [ENTER]
```

After you verify the change to the database, save the changes before entering another Select statement or exiting SQL*PLUS.

```
{SYS} SQL>

{TA}  commit; [ENTER]
```

The GBL can now be reprinted from within the TOPS application.

9.6 REPRINT OUTBOUND SERVICE NOTICES

There is no program in TOPS to reprint Outbound Service notices. The user must change the DATE_SERV_NOTE_PRINTED field in the SHIPMENT table back to a null value. First determine the member's ORDERS_SERIAL_KEY using the directions in Section 9.3. In the following statement, the variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY determined using the directions in Section 9.3.

```
{SYS} SQL>

{TA}  select orders_serial_key, shipment_number,
      date_serv_note_printed [ENTER]
      from shipment [ENTER]
      where orders_serial_key = {'orders serial key'}; [ENTER]
```

After identifying the correct record, update the DATE_SERV_NOTE_PRINTED field. In the following statement, the variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY determined using the directions in Section 9.2. The variable {shipment_number} refers to the

shipment number of the shipment being updated.

```
{SYS} SQL>

{TA}  update shipment [ENTER]
      set date_serv_note_printed = null [ENTER]
      where orders_serial_key = {'orders serial key'} [ENTER]
      and shipment_number = {'shipment number'}; [ENTER]
```

Verify that the DATE_SERV_NOTE_PRINTED updated correctly. In the following statement, the variable {orders_serial_key} refers to the ORDERS_SERIAL_KEY determined using the directions in section 9.3. The variable {shipment_number} refers to the shipment number of the shipment being updated.

```
{SYS} SQL>

{TA}  commit; [ENTER]

{SYS} SQL>

{TA}  select orders_serial_key, shipment_number,
      date_serv_note_printed [ENTER]
      from shipment [ENTER]
      where orders_serial_key = {'orders serial key'}; [ENTER]
```

Verify that there is no value in the DATE_SERV_NOTE_PRINTED field. Before entering another select statement or exiting SQL*PLUS, save the changes.

You or the user may print the Outbound Service notice from that program within the TOPS application.

9.7 VERIFY THE RECORDS IN SYSTEM.DUAL AFTER A DATABASE IS RECOVERED

If the database becomes corrupt, you will need to call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 for assistance. Once the MSRC representative has helped the site recover the database from a backup, ensure that only one record is in the SYSTEM.DUAL table.

Log onto the system as the *v7ora* user, and then enter SQL*PLUS as {SYS.}

```
{SYS} {GBLOC} login:

{TA}  v7ora [ENTER]

{SYS} Password

{TA}  {v7ora password} [ENTER]
```

```
{TA}  sqlplus system /{system password}[ENTER]
```

Check the records in the SYSTEM.DUAL table.

```
{SYS} SQL>

{TA}  set feedback 1 [ENTER]

{TA}  select * from dual; [ENTER]
```

If only one 'X' is returned, then the table is correct and the database can be used. If more than one 'X' is displayed, correct the SYSTEM.DUAL table:

```
{SYS} SQL>

{TA}  delete from dual; [ENTER]
{TA}  insert into dual values 'X' [ENTER]
```

Verify that only one value is in the SYSTEM.DUAL table.

```
{SYS} SQL>

{TA}  select * from dual; [ENTER]
```

If only one 'X' appears, save the changes. Otherwise, call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

```
{SYS} SQL>

{TA}  commit; [ENTER]
```

To exit SQL*PLUS:

```
{SYS} SQL>

{TA}  exit [ENTER]
```

Now exit the system.

```
{SYS} v7ora@gbloc

{TA}  exit [ENTER]
```

SECTION 10. SYSTEM RESTORATION PROCEDURES

10.1 INTRODUCTION

The restore process is used when files, directories and the database need to be restored as a result of data, files or directories being destroyed or corrupted. A complete system restore may be required if the system is inoperative. More often, a partial restore may be used to replace a lost or damaged directory or individual file. This is possible when the directory or file can be identified and the system is otherwise operational.

10.2 OVERVIEW

Restoration needs may vary widely from recovery of a single file to the recovery of a whole system. This section discusses different methodologies for recovery process based on the specific restoration need that is being fulfilled. The various methodologies discussed are designed to be most time effective and accurate way of restoring the full system functionality. Before detailing the recovery procedures, it is important to understand that any system recovery is only as good and accurate as the backup used. Therefore, it is **extremely important that up-to-date system backups be maintained** for the TOPS server.

The TOPS system primarily has two backups: the noon backup, and the night backup. These backups are initiated automatically via the root cron. The noon backup is made at 1200 every Monday through Friday. The night backup is made at 2000 every Monday through Saturday. The noon and night backup, also referred to as Daily backups, and are identical in terms of the files that are written to the tape. This includes several system files that are critical to the TOPS server operation and are referred to as critical files. The noon and night backups also include user data in the user home directories, and a full database dump as a single dump file, *Daily.dmp*.

The restoration procedures have been broadly categorized into five different categories:

- Full System Restoration
- Critical Files Restore
- Non-Critical Files Restore
- Full Database Restore
- Individual Database Tables Restore.

Each type of Restore is detailed in the following sections.

NOTE: Before beginning any restore procedure, ensure that all users are logged off from the system and remain logged off during the entire restoration process.

10.3 CRITICAL FILES LIST

Before discussing different types of restoration procedures, it is mandatory to understand that in this context what constitutes critical files versus non-critical files. This terminology will be used extensively in the following sections. The table below lists all critical files with their source and destination directories. You will need to refer to this table during the recovery process. Any file that is not listed in this table would be considered as a non-critical file.

Table 10-1: Critical File List

File Type	File name	File location	File backup location
File	st.conf	/kernel/drv	/backup/system/drv
File	S99routes	/etc/rc2.d	/backup/system/others
File	S99ping	/etc/rc2.d	/backup/system/others
File	.profile	/	/backup/system/others
File	passwd	/etc	/backup/system/etc
File	shadow	/etc	/backup/system/etc
File	system	/etc	/backup/system/etc
File	group	/etc	/backup/system/etc
File	ethers	/etc	/backup/system/etc
File	remote	/etc	/backup/system/etc
File	vfstab	/etc	/backup/system/etc
File	printers.conf	/etc	/backup/system/etc
File	hostname.iprb0	/etc	/backup/system/etc
File	defaultrouter	/etc	/backup/system/etc
File	nodename	/etc	/backup/system/etc
File	hosts	/etc/inet	/backup/system/etc
File	hosts.deny	/etc	/backup/system/etc
File	netmasks	/etc/inet	/backup/system/etc
File	inetd.conf	/etc/inet	/backup/system/etc
File	services	/etc/inet	/backup/system/etc
File	Systems	/etc/uucp	/backup/system/comm
File	Permissions	/etc/uucp	/backup/system/comm
File	Devices	/etc/uucp	/backup/system/comm
File	Dialers	/etc/uucp	/backup/system/comm
File	sendmail.cf	/etc/mail	/backup/system/others
File	initT.ora	/opt/v7ora/dbs	/backup/system/v7ora
File	initT_0.ora	/opt/v7ora/dbs	/backup/system/v7ora
File	whist_timestamp	/opt/tops/whist	/backup/system/tops/whist
File	maild.log	/opt/tops/taqm	/backup/system/tops/taqm
File	listener.ora	/var/opt/oracle	/backup/system/others
File	tnsnames.ora	/var/opt/oracle	/backup/system/others
File	sqlnet.ora	/var/opt/oracle	/backup/system/others
Directory	{ cron files }	/var/spool/cron/crontabs/	/backup/system/crontabs/
Directory	{ printer interface files }	/usr/lib/lp/model/	/backup/system/model/

File Type	File name	File location	File backup location
Directory	{ port monitor files }	/etc/saf	/backup/system/etc/saf/
Directory	{ port monitor logs }	/var/saf	/backup/system/var/saf/
Directory	{ mail files }	/var/mail	/backup/system/var/mail/
Directory	{ mail files }	/var/spool/mqueue/	/backup/system/var/spool/
Directory	{ taqm files }	/var/adm/taqm/	/backup/system/var/adm/taqm/
Directory	{ printer files }	/etc/lp/	/backup/system/lpd/
Directory	{TOPS data files }	/var/spool/uucppublic/	/backup/system/uucppublic/uucp.cpio
Directory	{ dfas data files }	/opt/tops/gbl/output/	/backup/system/tops/gbl/
Directory	{ Database files }	/backup	/backup/
Directory	{ user home directories }	/export/home	/export/home/

NOTE: The backup of all files in the directory */var/spool/uucppublic* is created as a cpio archive *uucp.cpio*. The backup of the */backup* directory does not include the */backup/base* directory.

10.4 FULL SYSTEM RESTORATION

A full system restore may be required for several kinds of system failure. This includes but is not limited to, hard disk failure, removal of some or all system files, OS errors, and TOPS application misconfiguration. If conditions require the restoration of the entire system, just restoring individual files may be inadequate for returning the system to full operating capability. To avoid problems or possibly additional deterioration of your system, call the MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328 and have the following available:

```
a.    Name of site, GBLOC
b.    Type of Computer platform i.e., INTEL 600MHz, 9GB Hard Drives, etc.
c.    Commercial phone numbers to computer/modem
d.    Root password
e.    Any additional known problems
f.    Backup tapes, blank tape
g.    Solaris 8 OS Distribution CDs
h.    Current TOPS Application CD
i.    Most recent Daily backup tape
```

Be prepared to remain available on the phone during the entire restore process.

To successfully perform a full system restore, you must have a good daily backup tape. The more current your backup, the more current your system state will be upon the completion of the restore. A full system restore may be considered a two-step process:

The first procedure is to install the Solaris 8 OS from the OS Distribution CDs.

The second procedure is to install Oracle and the TOPS application, and then the TOPS database and the user data in user accounts.

Follow the instructions below to perform each of these procedures.

10.4.1 OPERATING SYSTEM (OS) INSTALLATION

To perform the OS installation, you will need the OS distribution CDs, the floppy diskette labeled "TOPS Custom Jumpstart Diskette for Solaris 8 Intel Installation" that was created during the initial ICP 9.5 OS installation, the TOPS Application CD, and the most recent daily backup tape. Also locate and reference the instructions for system installation in the TOPS ICP 9.5 Installation Guide, dated August 13, 2002, DCN 2039002-305-068-rev1, before starting.

10.4.2 SOLARIS 8 OPERATING SYSTEM INSTALLATION PROCEDURE

To begin the Solaris OS installation, place the floppy diskette labeled ***"TOPS Custom Jumpstart Diskette for Solaris 8 Intel Installation"*** in the floppy diskette drive. Reboot the system by performing the following command:

```
{SYS} root@GBLOC>

{TA}  reboot [ENTER]
```

The system will reboot. Once the system is in the Solaris Device Configuration Assistant, place the CD labeled ***"Solaris 8 Software 1 of 2"*** into the Compact Disk Read Only Memory (CD-ROM) drive so that the label is face up. Take precaution not to touch the bottom of the CD. Touching the bottom of the CD may cause read errors. System messages are displayed on the console.

10.4.3 SOLARIS DEVICE CONFIGURATION ASSISTANT

Once in the Configuration Assistant press **[F2] or [Esc][2]** to continue.

10.4.3.1 IDENTIFIED DEVICES

The system is scanned to identify devices on the system. Once the scan is complete, a screen is then displayed listing devices identified on the system. Press **[F2] or [Esc][2]** to continue. There is no need to verify that information displayed.

10.4.3.2 BOOT SOLARIS

Boot the Solaris kernel by selecting the following entry:

CD: Target 6, TEAC CD-ROM CD-532S

Use the arrow keys and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

10.4.4 CUSTOM JUMPSTART INSTALLATION

A screen is displayed which prompts the user to select the type of installation.

NOTE: The user has thirty seconds to select the type of installation. If the user does not select option 2, the system defaults to option 1. If the default is automatically selected the user will need to turn off and turn back on the server.

Choose *Custom Jumpstart* by typing the number **2**. Press **[ENTER]** to continue. The system will now boot using the CD-ROM as the boot device. This will take several minutes.

10.4.5 THE SOLARIS INSTALLATION PROGRAM

The Solaris installation program will identify the peripheral devices, identify your system, and install the software. The installation program will use the ***TOPS Custom Jumpstart Diskette for Solaris 8 Intel Installation*** as the input for your system. When prompted press **[F2] or [Esc][2]**.

10.4.5.1 KDMCONFIG INTRODUCTION

Press **[F4]** or **[Esc][4]** to bypass viewing and editing.

The first part of the OS installation starts. This takes approximately thirty minutes for the entire first part. When the system displays a screen prompting you to make a selection to continue or exit, remove the ***TOPS Custom Jumpstart Diskette for Solaris 8 Intel Installation***. Slide the tab closed on the diskette to protect it from being overwritten and store in a safe place. Be sure to retain the Jumpstart Diskette for future use. In the event of the system being rebuilt, this diskette is needed.

Press **1** and then **[Enter]** to continue.

File systems are being created and Solaris packages are being installed. This process takes approximately twenty minutes. When this completes the system will reboot and prompt you to remove the CD during the system reboot. Do **NOT** load the second Solaris 8 CD at this time. You will be instructed later to load the second CD, when the system is ready for it.

Once the reboot has started press the CD-ROM eject button on the server to remove ***Solaris 8 Software 1 of 2***.

10.4.5.2 KDMCONFIG

The kdmconfig screen is displayed. Press **[F2] or [Esc][2]** to continue, and perform the following selections listed below:

Select ***Change Video Device/Monitor***. To make a selection, use the arrow keys, and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

Select ***ATI 3D RAGE PRO (8MB).*** To make a selection, use the arrow keys, and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

Select ***Plug and Play Mfreq 14 Inch CTX5696***. To make a selection, use the arrow keys, and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

Select ***1024x768 - 16777216 colors @ 85 Hz*** for Virtual Screen Resolution. To make a selection, use the arrow keys, and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

Select ***No changes needed – Test/Save and Exit***. To make a selection, use the arrow keys, and press **[ENTER]** to mark the selection **[X]**. Press **[F2] or [Esc][2]** to continue.

Press **[F2] or [Esc][2]** to continue. The test screen is displayed. Ensure that the mouse works by clicking on the ***YES*** block.

The system will continue the reboot process. The user will be prompted to enter a root password. Type in the desired root password and press **[ENTER]**. The user will be prompted to retype the password to ensure that no mistakes were made. Retype the password and press **[ENTER]**. As a security precaution, the password text is hidden from view. Once the root password is confirmed, the system will complete the boot process. For more information on proper password creation, refer to Section 3.9 in this guide.

The first part of the Solaris OS installation is now complete. Log on to the server as the *root* user. A pop-up window is displayed. Select **Common Desktop Environment (under Options, Session)**. Enter *root* as the user name and click on the **OK** button.

Place the CD labeled "***Solaris 8 Software 2 of 2"*** into the CD-ROM drive so that the label is face up. Take precaution not to touch the bottom of the CD. Touching the bottom of the CD may cause read errors. A pop-up window with three icons is displayed. Double click on the **Installer** icon. The second part of the OS installation will begin and takes approximately thirty minutes to

complete.

When the second part of the installation has completed, a pop-up window is displayed. Click on the **Exit** button to exit. A terminal session needs to be started. To start a terminal session, right click anywhere on the desktop. A pop-up window is displayed, select **Tools** and then select **Terminal**. A terminal session is started. At the root prompt, perform the following steps to eject the CD from the CD-ROM drive:

```
{SYS} #
{TA}  cd / [ENTER]
{SYS} #
{TA}  eject [ENTER]
{SYS} #
```

The CD-ROM will eject from the CD-ROM drive. Please remove from the drive and store in a safe place. The server needs to be rebooted to complete the installation of Solaris 8. Perform the following command:

```
{SYS} #
{TA}  reboot [ENTER]
```

When the server is up, proceed to the next Section to start the TOPS ICP 9.5 installation.

10.5 TOPS APPLICATION SOFTWARE INSTALLATION

This section provides the information to install the Oracle database, TOPS application package, and restoration of TOPS database and user home directories. Before you begin, you will need the TOPS application CDs and the most current noon or night backup tape.

There are several installation options on the TOPS application CDs. To perform the full system upgrade, select the Full System Upgrade Installation option 3.

You do not need to perform the database import manually as part of this procedure; it is done automatically by the CD upgrade procedures.

When prompted for a tape during the restore process, use the most current Daily backup tape, i.e. noon or night backup tape. During the recovery process, some messages may reference "sparc file backup tape". Ignore such messages and continue with the install using the Daily backup tape.

10.5.1 CRITICAL FILES RESTORE

This type of restore should be performed for restoring individual files that belong to the critical files list discussed in Section 10.3. Some of the examples of such a restore would be to recover the system cron, i.e. the root cron file */var/spool/cron/crontabs/root*, the hosts table */etc/hosts*, the password file */etc/passwd*, user data files in user home directories.

The TOPS server is automated with a *backup* file system. The */backup/system* directory contains the system critical files. The list of the system critical files is provided in Section 10.3. The */backup/data* directory contains the database export Daily dump and log files. The */export/home* directory contains the TOPS user home directories and files. These files and directories are written to tape during the Daily backups and will be retrieved from the tape during system restoration.

NOTE: The critical system files are restored as part of the Full System restoration.

10.5.2 NON-CRITICAL FILES RESTORE

In the context of these restoration procedures, a non-critical file is defined as file that does not belong to the critical files list mentioned in Section 10.3. It could also be considered a file that is not updated frequently and in most cases is not unique to the system. An example of such a file may be a TOPS application file such as a form or a report, which was removed from the system accidentally. In such cases, if the file is not unique to the site it may be requested from the PPPSB Consolidated Help Desk or it may be recovered from a full system backup tape. If the file to be recovered is a TOPS application baseline file and the TA chooses to recover it from the full system backup tape, the TA must ensure that the backup reflects the current TOPS application baseline on the system. Otherwise, there is a possibility that an older application file may be restored on the system, which may be incompatible with the rest of the application.

NOTE: The non-critical system files are restored as part of the Full System restoration.

To perform these procedures proceed to the ICP 9.5 Installations in the next section.

10.5.3 ICP 9.5 INTEL SOFTWARE INSTALLATION PROCEDURE

This section provides the installation procedures for the TOPS ICP 9.5 Intel CD.

10.5.3.1 SYSTEM LOGIN (USING CONSOLE LOGIN UNDER OPTIONS)

```
{SYS} {GBLOC} Login:
```

```
{TA}  root [ENTER]

{SYS} Password:

{TA}  (root password} [ENTER]
```

10.5.3.2 INSERT THE CD

Place the CD labeled ***TOPS ICP 9.5 for Intel*** into the CD-ROM drive so that the label is face up. Take precaution not to touch the bottom of the CD. Touching the bottom of the CD may cause read errors.

10.5.3.3 RUN THE CD STARTUP MENU

When using a command line console session the installation menu on the CD can be easily invoked by typing ***sh /cdrom/cdrom0/Install_Scripts/main.sh*** at the root prompt. When using the Common Desktop Environment session on the console, after logging in as root, place the CD into the CDROM. The contents of the CD are displayed within the window. Double click on the **Install_Scripts** icon and then on the **main.sh** icon. With either option, the following is displayed:

```
{SYS} Select the correct number for the type of installation that is being
      performed:
      1. Restore Data on Intel
      ** Requires daily backup tape **)

      2. Application Upgrade to ICP-9.5

      3. Full System Upgrade Installation
       ** Requires daily backup tape **

      4. New Site Installation

      5. Exit

      Select Choice 1,2,3,4 or 5 >
```

10.5.3.4 START THE FULL SYSTEM UPGRADE INSTALLATION

To begin the full upgrade installation of ICP 9.5, press **[3]** and press **[ENTER].**

Screen flow similar to the following is displayed on the console:

```
{SYS}
*********************************************************************
                  TOPS FULL SYSTEM UPGRADE INSTALLATION LOG
*********************************************************************
---------------------------------------------------------------------
         Started on Intel DFXT at Tue May 13 13:36:47 EDT 2003
---------------------------------------------------------------------
```

Messages pertaining to the upgrade are displayed on the screen.

```
{SYS}
Start: Executing script - restore_intel_files.sh
*************************************************************************
                      Beginning TOPS Data Restore
*************************************************************************
  This script will restore files from the tape to the Intel server for
  the TOPS Version ICP-9.5. Items required to perform the restore:

  1 Tape with Intel Files Backup
  (i.e. Most Current Daily Backup Tape)

  Please put the tape labeled DAILY BACKUP in the tape drive.  Press
  enter to continue once tape is mounted. If you wish to continue this
  process, please press enter now to continue or "Q" to quit.

             PRESS ENTER NOW TO CONTINUE OR OR "Q" TO QUIT
```

Press **[ENTER]** to continue with the installation.

The system will restore system critical files from the most recent backup tape and install the TOPS application.

```
{SYS}
  Continuing the TOPS Data Restore process ...
  Initializing system before Intel critical file Restore ...
  Restoring the files from the tape drive ...
    Restore Complete - Remove the Tape.
  Initializing system after Intel critical file Restore ...

  System critical files have been restored on the Intel Server.
  Remove the tape and save it for future disaster recovery.
*************************************************************************
                           Data Files Restored
*************************************************************************
End: Executing script - restore_intel_files.sh

 The system run-level is 3. To continue the installation of Solaris 8
 x86 Patches, the system will be reset again.  Please enter your root
 password when prompted to enter Single User Mode.  Your system will
 now REBOOT in order to complete the PATCH INSTALLATION process.

                       PRESS ENTER NOW TO REBOOT
```

Press **[ENTER]** to continue with the installation.

The system will reboot to Single User Mode to install the necessary Solaris patches.

```
{SYS}
INIT: SINGLE USER MODE
Type Ctrl-d to proceed with normal startup
(or give root password for system maintenance):
```

```
{TA}  (root password} [ENTER]

{SYSTEM}
**********************************************************************
  Continuing the Installation of Solaris Patches ... Please Wait ...
**********************************************************************
```

Messages pertaining to the upgrade are displayed on the screen.

```
{SYSTEM}
Start: Executing script - install_sol_patches.sh
**********************************************************************
                        Installing Solaris Patches
**********************************************************************
 During the installation of the Solaris 8_x86_Recommended Cluster,
 you may see the following messages after a patch has been attempted
 to be installed ...

 Installing lxxxxx-xx...
   Installation of lxxxxx-xx failed. Return code 2.
       (Attempt to apply a patch that has already been applied.)

 Installing lxxxxx-xx...
   Installation of lxxxxx-xx failed. Return code 8.
       (Attempting to patch a package that is not installed.)

 These messages may be normal as a patch may already be applied to the
 the system or a particular Solaris Package is not installed that
 requires the patch. Please disregard these messages.  Any other
 messages need to be reported the Helpdesk immediately.

                      PRESS ENTER NOW TO CONTINUE
**********************************************************************
**********************************************************************
```

Press **[ENTER]** to continue with the installation.

The system installation will continue and install all necessary Solaris Patches. Upon completion, the system will reboot. After the system reboots back to a login prompt, login as the root user to continue with the Full System Upgrade Installation.

```
{SYS}
 The PATCH INSTALLATION process is now complete.  Please review the
 /var/sadm/TOPS/install_sol_patches.log file to verify a successful
 installation. Your system will now REBOOT in order for the changes
 to take effect.

                      PRESS ENTER NOW TO REBOOT
```

Press **[ENTER]** to reboot and continue with the installation.

```
{SYS}
  Rebooting the system. Please log in as root after the reboot.
  The Installation will continue automatically after the reboot.
```

During this process, the TOPS environment is configured. The system will reboot automatically. After the system reboots back to a login prompt, login as the root user to continue with the Full System Upgrade Installation.

```
{SYS}
*********************************************************************
  Continuing the Installation of TOPS ... Please Wait ...
*********************************************************************
```

Messages pertaining to the upgrade are displayed on the screen.

```
{SYS}
  Rebooting the system. Please log in as root after the reboot.
  The Installation will continue automatically after the reboot.
```

The Full System Upgrade Installation will continue. During this third phase of the installation, the TOPS database is created.

```
{SYS}
*********************************************************************
  Continuing the Installation of TOPS ... Please Wait ...
*********************************************************************
```

Messages pertaining to the upgrade are displayed on the screen.

When the following message is displayed on the console, the full system upgrade process is complete.

```
{SYS}
*********************************************************************
*********************************************************************
  The SYSTEM UPGRADE process is now complete.  Please review the log
  /var/sadm/TOPS/system_upgrade.log and other logs in /var/sadm/TOPS
  to verify a successful installation.  The system must be rebooted
  following a successful upgrade. Please REBOOT your system now by
  typing:   init 6   at the root prompt.

*********************************************************************
*********************************************************************
```

To complete the installation, reboot the system by using the following:

```
{TA)  init 6 [ENTER]
```

The system will reboot and complete the installation.

Once the installation has completed the CD will need to be removed from the CD-ROM drive. To eject the CD from the CD-ROM drive single click on the window labeled **'File Manager - {GBLOC}:root'.** A pop-up window is displayed, double click on the **cdrom** icon. A pop-up window is displayed, click on **File** on the tool bar and then click on **Eject**. The CD will eject from the CD-ROM drive. Remove the CD from the CD-ROM drive and store in a safe place.

10.6 MANUAL RESTORE FULL DATABASE DUMP

This restoration procedure is used to manually import the entire TOPS database from the export dump, *Daily.dmp,* created during the daily backups. Such restoration may be required in an event of a database crash, inconsistent database or extreme fragmentation of database. However, to perform a full database import, the database needs to be available. In other words you should be able to start the database. If you cannot start the database, you must restore the entire system, as discussed in Section 10.4.

To perform a full database import, a full database export dump file is required. The most recent database dump may be obtained from the */backup/data* directory. Restoring critical files from the file system is explained in detail in Section 10.5. Follow the instructions below to manually import the Database dump files from the */backup/data* directory by first logging in as v7ora, switching to root, and then stopping the cron before proceeding.

NOTE: All users should be off the system and remain logged-off during these procedures!

```
{SYS} GBLOC login

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{SYS  v7ora@gbloc>

{TA}  su – root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]
{SYS} root@gbloc>

{TA}  /etc/init.d/cron stop [ENTER]

{SYS} root@gbloc>

{TA}  exit [ENTER]
```

The next part of the procedure is to shutdown and the startup the database to confirm that the database can be started and also ensures that no users are connected to the database, and to drop all the objects tables, views, and indexes in the database. Login as *v7ora* and follow the below steps.

```
{SYS} v7ora@gbloc>

{TA}  svrmgrl [ENTER]
```

```
{SYS} Server Manager: Release 2.0.3 – Production
Copyright c Oracle Corporation 1994. All rights reserved.
Oracle7 Server Release 7.1.4.1.0 - Production Release
With the distributed option
PL/SQL Release 2.1.4.0.0 - Production

{SYS} SVRMGR>

{TA}  connect internal [ENTER]

{SYS} Connected.

{SYS} SVRMGR>

{TA}  shutdown immediate [ENTER]

{SYS} Database closed.
Database dismounted.
ORACLE instance shut down.
```

NOTE: If you do not get the above system messages, it is possible that there may be some user process still connected to the database. In such case, you may reboot the system and start the process from beginning.

```
{SYS} SVRMGR>
{TA}  startup [ENTER]

{SYS} ORACLE instance started.
Database mounted.
Database opened.
Total System Global Area            139008992 bytes
Fixed Size                              46388 bytes
Variable Size                        84666028 bytes
Database Buffers                     53248000 bytes
Redo Buffers                          1048576 bytes

{SYS} SVRMGR>
{TA}  exit [ENTER]
{SYS} Server Manager complete.

{SYS} v7ora@gbloc>
```

NOTE: The shutdown and the startup process above confirms that the database can be started and also ensures that no users are connected to the database.

```
{TA}  su – root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]

{SYS} root@gbloc>

{TA}  sh /opt/tops/admin/table_scripts/drop.sh [ENTER]

{SYS} root@gbloc>
```

```
{TA}  sh /opt/tops/admin/run_all.sh [ENTER]

{SYS} root@gbloc>

{TA}  sh /usr/bin/import_tops [ENTER]

{SYS}
Import: Release 7.1.4.1.0 - Production on Mon May 21 22:21:25 2001

Copyright c Oracle Corporation 1979, 1994.  All rights reserved.

Connected to: Oracle7 Server Release 7.1.4.1.0 - Production Release
With the distributed option
PL/SQL Release 2.1.4.0.0 - Production

Export file created by EXPORT:V07.01.04
. importing TOPSDB's objects into TOPSDB
. . importing table "AUDIT_ACTIONS"                          110 rows imported
. . importing table "IAPXTB"                                   3 rows imported
. . importing table "PRODUCT_PROFILE"                          0 rows imported
. . importing table "TDAS_ARCHIVE_INDEX"                    1029 rows imported
. . importing table "USER_PROFILE"                             0 rows imported
. importing TOPSDB's objects into TOPSDB
. . importing table "AGENT_SIT_FACILITY"                     106 rows imported
. . importing table "AMC_MSC_PORT_RATE"                     1201 rows imported
. . importing table "APPOINTMENT"                           2694 rows imported
. . importing table "ARCHIVE_INDEX"                       112295 rows imported
. . importing table "ARRIVE_NOTE_PRINT_TEMP"                  46 rows imported
. . importing table "ASN_DATA"                               651 rows imported
. . importing table "ASN_FILE_SEQUENCE"                        1 rows imported
. . importing table "ASN_MASTER"                             400 rows imported
. . importing table "BASIC_ORDERING_AGREEMENT"               543 rows imported
. . importing table "BOA_RATES_BY_ZONE"                     2714 rows imported
. . importing table "CANCEL_DPM_REMARKS"                     220 rows imported
. . importing table "CARRIER"                               1370 rows imported
. . importing table "CARRIER_EXCEPTION_STATE_INTER"          155 rows imported
. . importing table "CARRIER_INCLUDED_STATE_INTRA"            14 rows imported
. . importing table "CODE"                                  1004 rows imported
. . importing table "CODE_OF_SERV_SELECTION_LOG"           26130 rows imported
. . importing table "CODE_TYPE"                               24 rows imported
. . importing table "CONTROL_SEQUENCE_NUMBER"                 21 rows imported
. . importing table "COUNSELING_SESSION_STATUS"                0 rows imported
. . importing table "COUNSELOR_AVAILABILITY"                  38 rows imported
. . importing table "COUNSELOR_UNAVAILABLE_TIME"             341 rows imported
. . importing table "CUSTOMS_GEN"                            100 rows imported
. . importing table "DD1164_PRINT_TEMP"                      339 rows imported
. . importing table "DD1299"                                95440 rows imported
. . importing table "DD1299_PRINT_TEMP"                        91 rows imported
. . importing table "DD1671_PRINT_TEMP"                         0 rows imported
. . importing table "DD1780_PRINT_TEMP"                         0 rows imported
. . importing table "DD1814_PRINT_TEMP"                         2 rows imported
. . importing table "DD619_PRINT_TEMP"                         13 rows imported
. . importing table "DDFORM_REMARK_SECTION"                   626 rows imported
. . importing table "DDFORM_REMARK_TEMP"                       10 rows imported
. . importing table "DITY_FINANCE"                            782 rows imported
. . importing table "DOMESTIC_ADDL_SERVICE_ITEM"              825 rows imported
. . importing table "DOMESTIC_MILEAGE"                       4226 rows imported
. . importing table "DOMESTIC_TRANSIT_TIME"                   140 rows imported
. . importing table "DOM_DPM_ZONE_DESCRIPTION"                249 rows imported
. . importing table "DOM_PPSO_CONTACT_INSTR"                  200 rows imported
```

```
. . importing table "DOM_PPSO_DPM_ZONE"                    3809 rows imported
. . importing table "DOM_VOLUME_MOVE_SERVICE"                 0 rows imported
. . importing table "DOM_WT_ADDL_SERVICE_ITEM"               68 rows imported
. . importing table "DPM_ADDITIONAL_SCHEDULE_ITEM"            0 rows imported
. . importing table "DPM_CARRIER_SELECTION_REMARKS"        1146 rows imported
. . importing table "DPM_CLASS_100_RATES"                  1116 rows imported
. . importing table "DPM_COMM_AIR_CARRIERS"                  32 rows imported
. . importing table "DPM_COMM_AIR_RATE"                   23646 rows imported
. . importing table "DPM_CONFIRM_PRINT_TEMP"                 57 rows imported
. . importing table "DPM_CONTRACT"                           16 rows imported
. . importing table "DPM_CONTRACTOR"                         20 rows imported
. . importing table "DPM_ITEM_RATE"                        1318 rows imported
. . importing table "DPM_SCHEDULE_AND_ZONE"                  42 rows imported
. . importing table "DPM_SCHEDULE_II"                      1030 rows imported
. . importing table "DPM_SCHEDULE_ITEM"                      80 rows imported
. . importing table "DPM_SERVICE_ORDER"                   21057 rows imported
. . importing table "DPM_SHIPMENT"                        15976 rows imported
. . importing table "DPM_SHIPMENT_INSPECTION"                15 rows imported
. . importing table "DPM_SHIPMENT_REFUSAL"                 1188 rows imported
. . importing table "DPM_SHIP_STG_TEMP"                       0 rows imported
. . importing table "DPM_TEMP_STORAGE_FACILITY"               2 rows imported
. . importing table "DTGBL_ADDL_TRANSP_CHARGE"             1086 rows imported
. . importing table "DTGBL_CARRIER_AGENT_SERVICE"          1252 rows imported
. . importing table "DTGBL_CARRIER_CURRENT_STATUS"         4097 rows imported
. . importing table "DTGBL_INSPECTION_ITEM_DESC"              0 rows imported
. . importing table "DTGBL_INTERSTATE_QA_LOG"              1077 rows imported
. . importing table "DTGBL_INTERSTATE_SERVICE"            27328 rows imported
. . importing table "DTGBL_INTRASTATE_QA_LOG"                30 rows imported
. . importing table "DTGBL_INTRASTATE_ROUTE_TONNAGE"          7 rows imported
. . importing table "DTGBL_INTRASTATE_SERVICE"               50 rows imported
. . importing table "DTGBL_INTRA_CARR_CURRENT_STAT"         111 rows imported
. . importing table "DTGBL_LINEHAUL_BASE_RATE"             7056 rows imported
. . importing table "DTGBL_SHIPMENT_EVALUATION"           82832 rows imported
. . importing table "DTGBL_SHIP_LE_500MI_GIVEN_PT"         4896 rows imported
. . importing table "DTOD_CONTROL"                            1 rows imported
. . importing table "DUMMY"                                   0 rows imported
. . importing table "EXCESS_COSTS"                          518 rows imported
. . importing table "EXCESS_PRINT_TEMP"                       0 rows imported
. . importing table "EXPORT_CONTROL"                       1644 rows imported
. . importing table "FINANCE_CEnterS"                         6 rows imported
. . importing table "FINANCE_OFFICE"                          7 rows imported
. . importing table "FIREARMS"                                2 rows imported
. . importing table "FOREIGN_COUNTRY_INSTR"                 131 rows imported
. . importing table "FREIGHT_CARRIER"                        12 rows imported
. . importing table "FREIGHT_CARRIER_DEST_STATES"          1834 rows imported
. . importing table "FREIGHT_CARRIER_PICKUP_STATES"          47 rows imported
. . importing table "FREIGHT_CARRIER_TENDER"                 48 rows imported
. . importing table "GBLOC_DESCRIPTION"                     623 rows imported
. . importing table "GBLOC_TELECOMM_STATUS"                 180 rows imported
. . importing table "GBL_CORRECTED_ITEMS_LOG"              9396 rows imported
. . importing table "GBL_CORRECTION_AUDIT_LOG"             5125 rows imported
. . importing table "GBL_CORR_ITEM_LOG_TEMP"               1093 rows imported
. . importing table "GBL_NUMBER_BLOCK"                       18 rows imported
. . importing table "GBL_PRINT_TEMP"                          0 rows imported
. . importing table "GBL_SEQUENCE"                            1 rows imported
. . importing table "HOLD_1200_TEMP"                         14 rows imported
. . importing table "INBOUND_MBR_INSTRS"                  105964 rows imported
. . importing table "INBOUND_PROCESSES"                      16 rows imported
. . importing table "INBOUND_PROCESS_LOG"                 185646 rows imported
. . importing table "INCOMING_AUD_TEMP"                       2 rows imported
. . importing table "INCOMING_ITM_TEMP"                       7 rows imported
. . importing table "INCOMING_PRIOR_TEMP"                     0 rows imported
. . importing table "INCOMING_TEMP"                           2 rows imported
```

```
. . importing table "INTERNATIONAL_TRANSIT_TIME"            795 rows imported
. . importing table "INTERSTATE_CARRIER_EVAL"               649 rows imported
. . importing table "INTERSTATE_INTERLINING_CARRIER"          1 rows imported
. . importing table "INTL_ADDL_SERVICE_ITEM"               1608 rows imported
. . importing table "INTL_DPM_AVERAGE_RATE"                   0 rows imported
. . importing table "INTL_DPM_ZONE_DESCRIPTION"              68 rows imported
. . importing table "INTL_PPSO_CODES_OF_SERVICE"          16874 rows imported
. . importing table "INTL_PPSO_CODES_OF_SVC_ORIG"             0 rows imported
. . importing table "INTL_PPSO_CONTACT_INSTR"               292 rows imported
. . importing table "INTL_PPSO_DPM_ZONE"                     17 rows imported
. . importing table "INTL_TDR_TYPE"                        5718 rows imported
. . importing table "INTL_VOLUME_MOVE_SERVICE"                0 rows imported
. . importing table "INTL_WT_ADDL_SERVICE_ITEM"              99 rows imported
. . importing table "INTRASTATE_CARRIER_EVAL"               108 rows imported
. . importing table "INTRASTATE_INTERLINING_CARRIER"          0 rows imported
. . importing table "ITGBL_CARRIER_AGENT_SERVICE"          6258 rows imported
. . importing table "ITGBL_CARRIER_CURRENT_STATUS"        17846 rows imported
. . importing table "ITGBL_CARRIER_EVALUATION"             1728 rows imported
. . importing table "ITGBL_CHANNEL_TONNAGE"                 456 rows imported
. . importing table "ITGBL_CONUS_LINEHAUL_BASE_RATE"      13071 rows imported
. . importing table "ITGBL_QA_ACTION_LOG"                   774 rows imported
. . importing table "ITGBL_SCORING_MATRIX"                  242 rows imported
. . importing table "ITGBL_SERVICE"                        8359 rows imported
. . importing table "JTR_WEIGHT_ALLOWANCE"                    76 rows imported
. . importing table "LETTER_OF_INTENT_DATES"               3423 rows imported
. . importing table "LOCAL_DOM_DPM_ZONE_DEFINITION"         163 rows imported
. . importing table "LOCAL_INTL_DPM_ZONE_DEFINITION"          0 rows imported
. . importing table "LOCAL_PRINTER_SITE"                     35 rows imported
. . importing table "LOCAL_SITE_INFORMATION"                  1 rows imported
. . importing table "LOCAL_ZONE_DEFINITION"                  70 rows imported
. . importing table "LOCATION_CODE_LOOKUP"                  289 rows imported
. . importing table "LOI_TEMP"                              231 rows imported
. . importing table "MEMBER_CARRIER_PREFERENCE"             252 rows imported
. . importing table "MEMBER_CONTACT"                      78377 rows imported
. . importing table "MEMBER_ORDERS"                       84224 rows imported
. . importing table "MENU"                                  210 rows imported
. . importing table "MENU_ACCESS"                          1271 rows imported
. . importing table "MENU_EDIT"                            9737 rows imported
. . importing table "MENU_USER"                              91 rows imported
. . importing table "MENU_USER_CLASS"                        13 rows imported
. . importing table "MH_SIT_FACILITY"                         0 rows imported
. . importing table "MOBILE_HOME_SHIPMENT"                    4 rows imported
. . importing table "MULTIPLE_SEQUENCE_NUMBER"                1 rows imported
. . importing table "NA_LOCATIONS"                       231165 rows imported
. . importing table "NON_NA_LOCATIONS"                   601196 rows imported
. . importing table "NON_TEMPORARY_STORAGE_FACILITY"         77 rows imported
. . importing table "NTS_BOA_MOD_WT"                        227 rows imported
. . importing table "NTS_CONTRACTOR"                         45 rows imported
. . importing table "NTS_EXTENSION_ARCHIVE"                2130 rows imported
. . importing table "NTS_HI_SUMMARY_CALC_TEMP"                0 rows imported
. . importing table "NTS_INVOICE_NUMBER_HISTORY"           2679 rows imported
. . importing table "NTS_PRINT_LABELS_TEMP"                   1 rows imported
. . importing table "NTS_QS_SUMMARY_CALC_TEMP"                0 rows imported
. . importing table "NTS_QTRLY_REMOVAL_SUMMARY"             468 rows imported
. . importing table "NTS_SERV_ORD_REMARK"                 22323 rows imported
. . importing table "NTS_SHIPMENT"                        14181 rows imported
. . importing table "NTS_SHIPMENT_REFUSAL"                  332 rows imported
. . importing table "NTS_SPEC_TRANS"                          4 rows imported
. . importing table "NTS_TRANSACTION"                     14154 rows imported
. . importing table "OFFICE_CLOSED_DATE"                    260 rows imported
. . importing table "OFFICE_HOURS"                            7 rows imported
. . importing table "ONE_TIME_ONLY_SERVICE"                   0 rows imported
. . importing table "ORDERS_COMMENTS"                         0 rows imported
```

```
. . importing table "ORDERS_MASTER"                          84369 rows imported
. . importing table "OUTGOING_PRIOR_TEMP"                        0 rows imported
. . importing table "PCL_FORM_ENTRY"                           643 rows imported
. . importing table "PORT_CONTACT_INFORMATION"                1850 rows imported
. . importing table "PORT_OF_EMBARK_DEBARK"                   1730 rows imported
. . importing table "POV"                                     5400 rows imported
. . importing table "POV_PORT_OF_EMBARK_DEBARK"                  0 rows imported
. . importing table "PPPO_TELEPHONE_NUMBERS"                     0 rows imported
. . importing table "PPSO_DPM_CONSIGNMENT"                     516 rows imported
. . importing table "PPSO_TO_PPPO"                               0 rows imported
. . importing table "PRIOR_SHIPMENT"                         46471 rows imported
. . importing table "PRIOR_SHIP_LOCAL"                           0 rows imported
. . importing table "PRIOR_SHIP_TEMP"                            0 rows imported
. . importing table "PRTINVHO_SORT_HOLD"                         0 rows imported
. . importing table "PRTINVQS_SORT_HOLD"                         0 rows imported
. . importing table "PRT_SO_REG"                              1287 rows imported
. . importing table "PSWD_AGING"                                64 rows imported
. . importing table "P_HOLDDATE"                                 0 rows imported
. . importing table "RANK_TO_PAY_GRADE"                        395 rows imported
. . importing table "RATE_AREA_TO_GBLOC"                       538 rows imported
. . importing table "REJECTED_TEMP_HOLD"                         0 rows imported
. . importing table "RENEGOTIATION_PRINT_TEMP"                   0 rows imported
. . importing table "RENEGOT_TEMP_HOLD"                          0 rows imported
. . importing table "RENEWAL_PRINT_TEMP"                         0 rows imported
. . importing table "REQUESTED_SERVICE_CODE"                   207 rows imported
. . importing table "RESPONSIBLE_DOM_PPSO"                   18410 rows imported
. . importing table "RESPONSIBLE_INTL_PPSO"                   2021 rows imported
. . importing table "REWEIGH_CONF_PRINT_TEMP"                    0 rows imported
. . importing table "SERV_NOTE_PRINT_TEMP"                       0 rows imported
. . importing table "SF1200_PRINT_TEMP"                         29 rows imported
. . importing table "SF1200_VAL"                                80 rows imported
. . importing table "SHIPMENT"                               108196 rows imported
. . importing table "SHIPMENT_ADDITIONAL_SERVICE"             48004 rows imported
. . importing table "SHIPMENT_CLEARING"                       69344 rows imported
. . importing table "SHIPMENT_CODE_COST_EST"                 100595 rows imported
. . importing table "SHIPMENT_COMMENTS"                          5 rows imported
. . importing table "SHIPMENT_CROSSWALK"                        38 rows imported
. . importing table "SHIPMENT_DELIVERY"                       66717 rows imported
. . importing table "SHIPMENT_REWEIGH"                        13398 rows imported
. . importing table "SHIPMENT_SIT_TEMPORARY_STORAGE"          47976 rows imported
. . importing table "SHIP_ADDL_ADDRESSES"                      2602 rows imported
. . importing table "SHIP_ADDRESSES"                         106978 rows imported
. . importing table "SHIP_BOAT"                                  1 rows imported
. . importing table "SHIP_DITY"                               8799 rows imported
. . importing table "SHIP_STORAGE"                           97895 rows imported
. . importing table "SHIP_WEIGHTS"                          107223 rows imported
. . importing table "SHOW_FREIGHT_COSTS"                         0 rows imported
. . importing table "SPECTRANS_TEMP_HOLD"                        0 rows imported
. . importing table "SPLIT_PORTION"                           1249 rows imported
. . importing table "SPOUSE_IN_SERVICE"                        663 rows imported
. . importing table "STANDARD_TRANSIT_TIME"                   2403 rows imported
. . importing table "STORAGE_FACILITY"                         127 rows imported
. . importing table "STORAGE_FACILITY_INSP_LOG"                 55 rows imported
. . importing table "TAPE_INFO"                                 13 rows imported
. . importing table "TCMD_DATA"                               5294 rows imported
. . importing table "TCMD_ETA"                                  34 rows imported
. . importing table "TCMD_GMT"                                  24 rows imported
. . importing table "TCMD_PRINT_TEMP"                            0 rows imported
. . importing table "TDAS_ARCHIVE_INDEX"                     48191 rows imported
. . importing table "TDAS_ORD_COMMENT"                           0 rows imported
. . importing table "TDAS_SHIP_COMMENT"                          0 rows imported
. . importing table "TDTGBL_SCORING_MATRIX"                    242 rows imported
. . importing table "TEMP_CARR_SEL"                             49 rows imported
```

```
. . importing table "TEMP_CONS_SHIP"                          7 rows imported
. . importing table "TEMP_CONTR_SEL"                         41 rows imported
. . importing table "TEMP_FAX_PRINT"                          2 rows imported
. . importing table "TEMP_GBL"                                0 rows imported
. . importing table "TEMP_INVOICE_HI"                         0 rows imported
. . importing table "TEMP_RENEGOTIATIONS_HOLD"                0 rows imported
. . importing table "TEMP_TIME"                              95 rows imported
. . importing table "TEMP_USER_ID"                            1 rows imported
. . importing table "TGBL_AGENT"                             79 rows imported
. . importing table "TGBL_RATE_CYCLE"                        46 rows imported
. . importing table "TGBL_RATE_SOLICITATION"                 17 rows imported
. . importing table "TGBL_SHIPMENT_INSPECTION"            83985 rows imported
. . importing table "TGBL_SHIPMT_CARRIER_LOG"             28227 rows imported
. . importing table "TGBL_SHIPMT_CARRIER_REUSE"           31434 rows imported
. . importing table "TRACER_REQUEST"                          0 rows imported
. . importing table "TRACER_RESPONSE"                         0 rows imported
. . importing table "UB_WEIGHT_ALLOWANCE"                   200 rows imported
. . importing table "VOID_DPM_CONTROL_NUMBER"               238 rows imported
. . importing table "VOID_GBL_NUMBER"                      1823 rows imported
. . importing table "VOID_SIT_CONTROL_NUMBER"              1426 rows imported
. . importing table "WEIGHT_CUBE_MATRIX"                     52 rows imported
local user tables are restored
Import terminated successfully without warnings.
```

At this time the full database restore is complete. If the database import fails to import one or more tables due to integrity constraint violations, follow the instructions in the following section to restore those individual tables. Ignore any errors referring to unique constraint violations. The script */opt/tops/admin/nxtkey.sh* is run to refresh the sequence numbers for ORDERS_SERIAL_KEY and DPM_CONTROL_NUMBER.

```
{SYS} root@gbloc>

{TA}  sh /opt/tops/admin/nxtkey.sh [ENTER]

{SYS} root@gbloc>

{TA}  /etc/init.d/cron start [ENTER]

{SYS} root@gbloc>

{TA}  exit [ENTER]

{SYS} v7ora@gbloc>
```

10.7 RESTORING INDIVIDUAL DATABASE TABLES

This restore process is used to restore individual tables from the database export dump file, *Daily.dmp*, created during the daily and weekly backups, to the TOPS database. This type of restore may be required in the event of table corruption, accidental removal of table, or failure to successfully import one or more tables during the full database import due to integrity constraint violations. To perform this recovery, you will need the most current database export dump file, *Daily.dmp*. This file will be available in the */backup/data* directory. If for some reason this file is

not available, or it is corrupted, then recover the files following the instructions in Section 10.5.

The most current export dump file is in the */backup/data* directory, follow the directions below to import individual tables. The instructions in this example assume that two tables are to be imported: the TOPS database *carrier* table and the *itgbl_service* table.

```
{SYS} GBLOC login

{TA}  v7ora [ENTER]

{SYS} Password:

{TA}  {v7ora password} [ENTER]

{SYS} v7ora@gbloc>

{TA}  su – root [ENTER]

{SYS} Password:

{TA}  {root password} [ENTER]

{SYS} root@gbloc>

{TA}  /etc/init.d/cron stop [ENTER]

{SYS} root@gbloc>

{TA}  cd /backup/data [ENTER]

{SYS} root@gbloc>

{TA}  sqlplus topsdb/{topsdb password} [ENTER]

{SYS} SQL*Plus: Release 3.1.3.5.1 - Production on Wed May 23 00:17:15 2001
      Copyright c Oracle Corporation 1979, 1994.  All rights reserved.
      Connected to:
      Oracle7 Server Release 7.1.4.1.0 - Production Release
      With the distributed option
      PL/SQL Release 2.1.4.0.0 – Production

{SYS} SQL>

{TA}  truncate table carrier; [ENTER]
```

NOTE: This will drop the table that you need to import. Depending on the existence of table in the database you may get a different response. The response below assumes that the table did not exist in the database.

```
{SYS} ERROR at line 1: ORA-00942: table or view does not exist

{SYS} SQL>
```

```
{TA}  truncate table itgbl_service; [ENTER]
```

NOTE: This will drop the table that you need to import. Depending on the existence of table in the database you may get a different response. The response below assumes that the table existed in the database.

```
{SYS} Table truncated.

{SYS} SQL>

{TA}  exit [ENTER]

{SYS} Disconnected from Oracle7 Server Release 7.1.4.1.0 - Production Release
With the distributed option
PL/SQL Release 2.1.4.0.0 – Production

{SYS} root@gbloc>

{TA}  imp system/{system password}[ENTER]

{SYS} Import: Release 7.1.4.1.0 - Production on Wed May 23 01:00:28 2001
Copyright c Oracle Corporation 1979, 1994.  All rights reserved.
Connected to: Oracle7 Server Release 7.1.4.1.0 - Production Release
With the distributed option
PL/SQL Release 2.1.4.0.0 – Production

Import file: expdat.dmp >

{TA}  /backup/data/Daily.dmp [ENTER]

{SYS} Enter insert buffer size minimum is 4096 30720>

{TA}  1024000 [ENTER]

{SYS} Export file created by EXPORT:V07.01.04
List contents of import file only yes/no: no >

{TA}  [ENTER]

{SYS} Ignore create error due to object existence yes/no: yes >

{TA}  [ENTER]

{SYS} Import grants yes/no: yes >

{TA}  [ENTER]

{SYS} Import table data yes/no: yes >

{TA}  [ENTER]

{SYS} Import entire export file yes/no: yes >

{TA}  no [ENTER]
```

```
{SYS} Username:

{TA}  topsdb [ENTER]

{SYS} Enter table names. Null list means all tables for user
Enter table name or . if done:

{TA}  carrier [ENTER]

{SYS} Enter table name or . if done:

{TA}  itgbl_service [ENTER]

{SYS} Enter table name or . if done:

{TA}  . [ENTER]

{SYS} . importing TOPSDB's objects into TOPSDB
importing table "CARRIER"                              1370 rows imported
importing table "ITGBL_SERVICE"                        8359 rows imported
Import terminated successfully without warnings.

{SYS} root@gbloc>

{TA}  sh /opt/tops/admin/nxtkey.sh [ENTER]

{SYS} root@gbloc>

{TA}  /etc/init.d/cron start [ENTER]
{SYS} root@gbloc>

{TA}  exit [ENTER]
```

The table restoration process is now complete. You may restore several tables using the above procedures. However, if the changes were made to the database after the export dump file, *Daily.dmp*, was created then there is likelihood that you may have lost some data. It depends on the tables that may have been updated after the dump file was created and the tables being imported. In such an event some inconsistencies may be noticed in the TOPS application. These would have to be resolved with the assistance of MSRC at 1-800-331-7348, 703-428-3230, or 703-428-3314, DSN 328.

SECTION 11. ROUTERS

11.1 OVERVIEW

Routers are used to provide for the transfer of data between TOPS facilities. This transfer of data is between:

- PPSO <-> PPPO
- PPSO <-> Class I Sites
- PPSO <-> Switcher
- PPSO <-> MTMC
- PPSO <-> DFAS

The router serves as an interface between the system processor and the modem by attaching information to the data to permit transmission through a network. The information attached is referred to as a "protocol". The protocol used for TOPS is TCP/IP.

11.2 HARDWARE CONNECTIVITY

11.2.1 HARDWARE CONNECTIVITY FOR A CISCO MODEL 2501

The router is connected to the network via an Ethernet cable attached to the AUI port at the rear of the unit.

The modems are connected to the two serial ports at the rear of the router. If there is only one modem, it is normally connected to Serial Port 0.

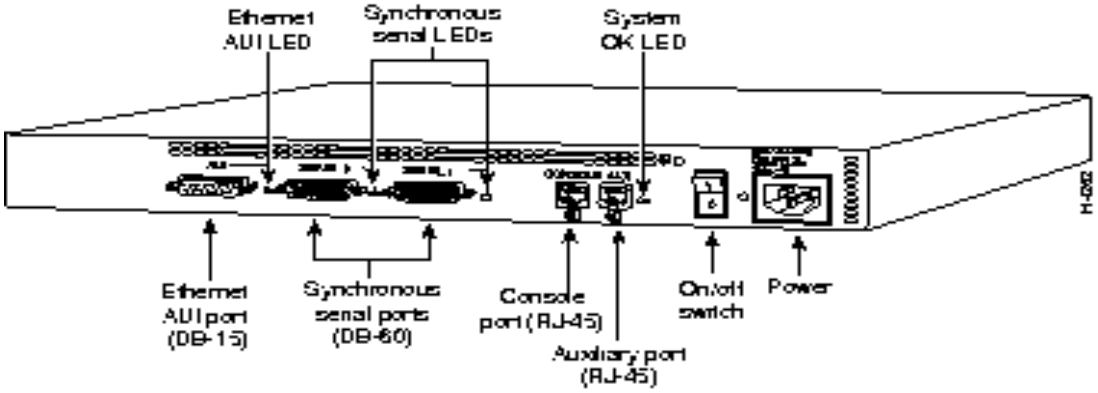

Figure 11-1: Cisco Model 2501 Router

11.2.2 HARDWARE CONNECTIVITY FOR A MODEL 4000

The router is connected to the network via a cable connected to one of the Attachment Unit Interface (AUI) ports. This could be an Ethernet cable plugged into the 10base2 port 15 pin, or it could be a twisted pair cable plugged into the 10baseT port like a telephone jack. The AUI ports are located on the back, left panel of the router.

The modems are connected to the serial ports in the middle panel on the back of the router. The number and type of serial ports will vary depending on the requirements of the particular site. These serial ports are generally a Cisco 60-pin high-density serial connection. The other end of the cable has a male DTE connector to attach to the modem's serial port. A typical rear panel configuration is shown below:

NOTE: Actual display and configuration may vary depending on requirements at a particular site from the below illustration.

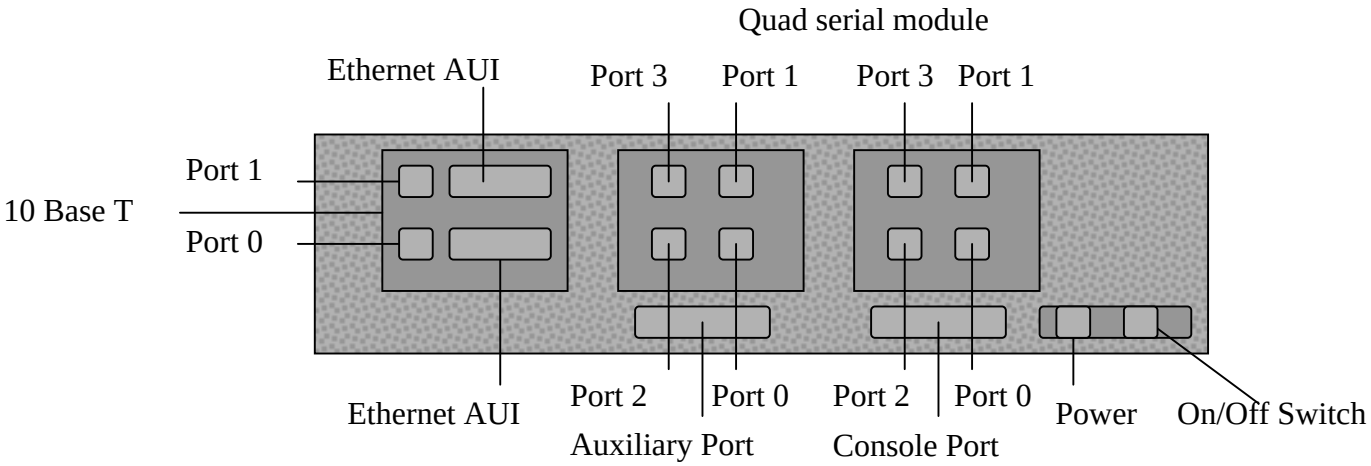

Figure 11-2: Model 4000 Router Rear Panel Configurations

11.3 TROUBLESHOOTING

Only MSRC personnel should perform troubleshooting for problems with routers.

11.4 STANDARD ROUTER CONFIGURATION

If the router location is at a Personal Property Shipping Office (PPSO) the host name of the router will be CHXXXX where X equals the INTEL platform machine's name.

If the router location is at a PPPO, Class II or above, the host name of the router will be CP#XXXX. The "#" would be a number starting at 0 and represents which port the remote site is

connected to on the host router. XXXX equals the Intel platform server's name.

If the router location is at a Class 1E PPPO the host name of the router will be CE#XXXX. The "#" would be a number starting at 0 and represents which port the remote site is connected to on the host router. XXXX equals the Intel platform server's name.

11.5 CISCO 2500/4000 SERIES ROUTERS PASSWORD RECOVERY

The following are the steps to perform password recovery on the Cisco 2500/4000 Series Routers.

1. Make a console connection to the router and hard boot the router. Do this by power cycling the router.

```
{SYS}
System Bootstrap, Version 11.010cXB1, PLATFORM SPECIFIC RELEASE SOFTWARE fc1
Copyright c 1986-1997 by Cisco Systems
2500 processor with 16384 Kbytes of main memory
```

2. Within 60 seconds after rebooting the router, press "Break".

```
{TA}  [Ctrl-Break] Windows Terminal

{TA}  [Alt-Break]  ProComm-Plus

{SYS} >
```

3. Find the current Configuration Register.

```
{TA}  > e/s 2000002 [ENTER]

{SYS} 2000002: 2102
Record the value of the Configuration Register 0x________ ex. 2102
```

4. Get out of "examine" mode.

```
{SYS} 2000002: 2102

{TA}  q [ENTER]
```

5. Change the Configuration Register.

```
{TA}  > o/r 0x2142 [ENTER]
```

6. Reboot the router. The router will boot using the Internetwork Operating System (IOS) stored in flash. Because it is set to ignore the Configuration File in NVRAM, it will assume there is no Configuration File.

```
{TA}  > i [ENTER]
```

```
{SYS}
System Bootstrap, Version 11.010cXB1, PLATFORM SPECIFIC RELEASE SOFTWARE fc1
Copyright c 1986-1997 by Cisco Systems
2500 processor with 16384 Kbytes of main memory

F3: 4237524+56160+236572 at 0x3000060

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subject to restrictions as set forth in subparagraph
c of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
c 1 ii of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.

           Cisco Systems, Inc.
           170 West Tasman Drive
           San Jose, California 95134-1706

Cisco Internetwork Operating System Software
IOS tm 2500 Software C2500-I-L, Version 11.216, RELEASE SOFTWARE fc1
Copyright c 1986-1998 by Cisco Systems, Inc.
Compiled Tue 06-Oct-98 11:30 by ashah
Image text-base: 0x0302300C, data-base: 0x00001000

Cisco 2500 68030 processor revision F with 16384K/2048K bytes of memory.
Processor board ID 04103955, with hardware revision 00000000
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
1 Ethernet/IEEE 802.3 interfaces
2 Serial network interfaces
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash Read ONLY
```

7. Ignore Setup Mode! **DO NOT** go into Setup Mode.

```
{SYS}
         --- System Configuration Dialog ---
At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.

Would you like to enter the initial configuration dialog? [yes]:

{TA}  n [ENTER]

{SYS} Press RETURN to get started!
      Router>
```

8. Go to Privileged Mode.

```
{TA}  enable [ENTER]
```

9. Restore the Configuration File in NVRAM to active RAM and change the passwords.

```
{TA}  Router# copy start run [ENTER]

      CHBKMT# config terminal [ENTER]

{SYS} Enter configuration commands, one per line.  End with CNTL/Z.

      CHBKMTconfig# no enable secret [ENTER]

      CHBKMTconfig# enable password enable-password [ENTER]

      CHBKMTconfig# line vty 0 4 [ENTER]

      CHBKMTconfig-line# password vty-password [ENTER]
```

10. Reset the original Configuration Register. This value was recorded from Step 3 above.

```
{TA}  CHBKMTconfig# config 0xconfig-register-value [ENTER] ex. 0x2102

      CHBKMTconfig# end [ENTER]

      CHBKMT# write memory [ENTER]

{SYS} Building configuration...
      [OK]
```

11. Reboot the router.

```
{TA}  CHBKMT# reload [ENTER]

{SYS} Proceed with reload? [Confirm] [ENTER]

{SYS} %SYS-5-RELOAD: Reload requested
System Bootstrap, Version 11.010cXB1, PLATFORM SPECIFIC RELEASE SOFTWARE fc1
Copyright c 1986-1997 by cisco Systems
2500 processor with 16384 Kbytes of main memory

F3: 4237524+56160+236572 at 0x3000060

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Rights clause at FAR sec. 52.227-19 and subparagraph
c 1 ii of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.

           Cisco Systems, Inc.
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           San Jose, California 95134-1706

Cisco Internetwork Operating System Software
IOS tm 2500 Software C2500-I-L, Version 11.216, RELEASE SOFTWARE fc1
Copyright c 1986-1998 by Cisco Systems, Inc.
Compiled Tue 06-Oct-98 11:30 by ashah
Image text-base: 0x0302300C, data-base: 0x00001000
```

```
Cisco 2500 68030 processor revision F with 16384K/2048K bytes of memory.
Processor board ID 04103955, with hardware revision 00000000
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
1 Ethernet/IEEE 802.3 interfaces
2 Serial network interfaces
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash Read ONLY


Press RETURN to get started!
```

12. TA press enter.

```
{TA}  [ENTER]
```

11.6 CISCO 2500/4000 SERIES ROUTERS CONFIGURATION FILE BACKUP AND RESTORATION

The following provides the steps to backup the Cisco 2500/4000 Series Router Configuration file to the Intel Server, and the steps to restore the Router Configuration file from the Intel Server.

11.6.1 BACKUP ROUTER CONFIGURATION FILE TO INTEL SERVER

Ensure that the TFTP service is running on your Solaris OS.

```
{TA}  cd /etc/inet [ENTER]

{TA}  grep tftp services [ENTER]

{SYS} tftp            69/udp

{TA}  grep tftp inetd.conf [ENTER]

{SYS}
#tftp   dgram   udp     wait   root  /usr/sbin/in.tftpd  in.tftpd -s /tftpboot
```

NOTE: Both files should return something for TFTP. The entry in inetd.conf may be commented out. If so, you must vi the file and uncomment the entry by removing the # sign from the beginning of the line.

```
{TA}  vi /etc/inet/inetd.conf [ENTER]

{TA}  /#tftp [ENTER] This will take you to the line for TFTP.

{TA}  x This will remove the # sign from the beginning of the line.

{TA}  :wq! [ENTER]
```

1. Get the PID for the inted service daemon running.

```
{TA}  ps –ef|grep inet [ENTER]

{SYS}
root   153     1  0   Jul 13 ?        0:00 /usr/sbin/inetd –st
```

2. Restart the inetd service daemon.

```
{TA}  kill –1 {PID} [Enter]  ex. PID is 153 from output above.

{TA}  netstat –a|grep tftp [Enter]

{SYS}
*.tftp                                Idle
```

3. Create a blank Configuration File to store the router's configuration.

```
{TA}  cd /tftpboot [ENTER]

{TA}  > config-File [ENTER]

ex. chbkmt-confg
```

NOTE: The first part of the filename is the name of the router. Make sure that the name is lower case.

```
{TA}  chmod 666 config-File [ENTER]
```

4. Make a connection to the router and enter Privileged Mode.

```
{TA}  CHBKMT> enable [ENTER]

{TA}  Password: enable-password [ENTER]
```

5. Copy Startup Configuration File to the system hard drive.

```
{TA}  CHBKMT# copy start tftp [ENTER]

{TA}  Remote host []? IP Address of Intel server [ENTER] ex.  89.0.1.0

{TA}  Name of configuration file to write [chbkmt-confg]?

{TA}  [ENTER]

{SYS} Write file chbkmt-confg on host 89.0.1.0? [confirm]

{TA}  [ENTER]

{SYS} Writing chbkmt-confg !! [OK]

{SYS} CHBKMT#
```

6. Turn the TFTP service off.

```
{TA}  cd /etc/inet [ENTER]

{TA}  vi /etc/inet/inetd.conf [ENTER]

{TA}  /tftp [ENTER] This will take you the line for TFTP.

{TA}  I# [ESC] This will insert a # sign at the beginning of the line.

{TA}  :wq! [ENTER]
```

7. Get the PID for the inetd service daemon running.

```
{TA}  ps –ef | grep inet [ENTER]

{SYS} root   153     1  0   Jul 13 ?        0:00 /usr/sbin/inetd –st
```

8. Restart the inetd service daemon.

```
{TA}  kill –1 {PID} [ENTER]

ex. PID is 153 from output above.
```

11.6.2 RESTORE ROUTER CONFIGURATION FILE FROM INTEL SERVER

In order to perform this procedure *tftp* needs to be running.. To ensure that the TFTP service is running refer to Section 12.6.1 and perform steps 1 through 4. To turn the TFTP services off after completing steps 1 through 3 below, refer to Section 12.6.1 and perform steps 7 through 9.

Make a console connection to the router and enter Privileged Mode.

```
{TA} CHBKMT> enable [ENTER]

{TA} Password: enable-password [ENTER]
```

1. Configure the router using a backup copy of the stored Configuration File.

```
{TA}  CHBKMT# config network [ENTER]

{TA}  Host or network configuration file [host]? [ENTER]

{TA}  Address of remote host [255.255.255.255]? IP Address of Intel server
[ENTER] ex.  89.0.1.0

{TA}  Name of configuration file [chbkmt-confg]? config-file [ENTER]

ex. chbkmt-confg

{TA}  Configure using chbkmt-confg from 89.0.1.0? [confirm][ENTER]
```

```
{SYS} Loading chbkmt-confg !! [OK]

{TA}  CHBKMT# write memory [ENTER]

{SYS} Building configuration...
      [OK]
      CHBKMT#
```

1. Monitor for proper operation.

SECTION 12. USER DEFINABLE FILE TRANFERS

12.1 OVERVIEW

In TOPS version 9.5 and above the new data transmission protocol using JMS will support the user-defined file transfers between sites (ICP 9.5 PPSO or PPPO sites), in accordance with strict naming guidelines. This process is referred to as a user definable file transfer because it is user-directed rather than system directed.

A user-definable transfer is accomplished by creating a file that complies with the *utran* naming specification. Refer to Section 12.2. The file is then placed by the user in the correct data-transfer directory, */usr/spool/uucppublic/savetca.* The TOPS Communication Agent (TCA) data-transfer module takes over from there, and the file is routed to the correct destination GBLOC. At the destination site, the file can be found in the */usr/spool/uucppublic/utran* directory.

12.2 NAMING SPECIFICATION

User-definable files within TOPS have a strict naming specification. Any file not conforming to this specification will **not** be recognized within the TCA data-transfer source directory; and will remain there indefinitely. Enforcing such a strict naming convention serves several purposes, and one is to enable the TOPS Communication Agent data-transfer module within to distinguish from among the numerous existing file types and file name variants already being transferred. Another reason for the strict convention is to make the file names more readable and consistent.

12.3 USER UTRAN FILE NAMES

The user *utran* file naming convention specifies five fields separated by field delimiters, either a period or a hyphen. Figure 12-1 displays the naming convention template. Each field is explained in detail in Table 12-1. All *utran* file names must use these exact delimiters and comply fully with the below field specifications.

```
utran.[GBLOC].[user-field].[Julian-date]-[hour]
```

Figure 12-1 *utran* File Naming Convention

Table 12-1 User *utran* File Name - Field Detail

Field	Description	Length	Acceptable Characters	Notes/Error Conditions
GBLOC	The destination GBLOC address used for routing	4	Alpha, upper-case	If the GBLOC field is invalid (is not a valid GBLOC) or the site has not installed TOPS 9.5 or above, the file(s) will be lost
user-field	Any user defined string/name used to represent the user-intended purpose of the file or other information	1 to 16	Alphanumeric, mixed-case plus '-' and '_' characters.	
julian-date	Integer representation of a Julian Date	3	Numeric	
hour	Integer representation of the hour when the file is created.	2	Numeric	

Listed below are examples of *utran* file names:

- **utran.ALNT.report04.037-14** - a *utran* report-oriented file routed to the (ALNT) Newport, RI PPSO site.
- **utran.BGNC.notes098AGFM.512-12 -** a utran file routed to the (BGNC) Norfolk, VA PPSO site. **Note**: the user field is twelve characters and contains the source GBLOC that is not used by the system for routing, only for reference.

12.4 USER DEFINED UTRAN FILE SIZE LIMIT

The size limit for *utran* files is 250 KB. If a file is found which complies with the file-name specification but exceeds this size, it will be ignored and not transferred to any destination

12.5 USER UTRAN FILE CONTENT

The content of a *utran* file may be either binary or text.

12.6 CONTENT ENCRYPTION

The TCA data-transfer module automatically encrypts all content further encryption is unnecessary.

12.7 SENDING TOPS USER UTRAN FILES

The following steps are necessary when sending *utran* files.

1. Create the source *utran* file from a UNIX shell or other program according to the *utran* file-name specification
2. Place the file into the TCA data-transfer module export or send directory, */usr/spool/uucppublic/savetca*, on the source site.
3. The file will be routed to the destination.

12.8 RECEIVING TOPS USER UTRAN FILES

All TOPS *utran* files are received at the destination site in the */usr/spool/uucppublic/utran* directory. They may then be processed, as needed, by the destination.

SECTION 13. TCA PROCESSES

13.1 TCA CONFIGURATION

The TCA is highly configurable. Its configuration data is XML that is compliant with an XML Schema specifically written for the application, ***CommunicationAgentConfig.xsd***. At runtime, the XML configuration file is parsed and validated against the XML Schema, then bound or marshaled into Java class instances. TCA then uses these configuration classes to drive the instantiation of agent-application classes. TCAs may be configured to have any number of connections to the messaging host. Each may have a single messaging session, which may be transacted or not. Each session may have any number of message publishers, senders, subscribers or receivers. Refer to JMS documentation for more information on publishers, senders, subscribers and receivers

TCAs are configured differently for the various hosts. Depending on the needed functionality, each type of host runs the TCA with a different configuration file and command-line parameters. For example, when runs on a PPSO the TCA is with certain command line parameters found in ***/opt/tops/admin/switch/ppso/start_tca.sh***. One of the parameters is the configuration file to use ***ppso.xml***.

13.2 LOCAL MONITORING OF TCAS

On every server where TCA is running, the TCA can be monitored by viewing process information using a UNIX command. At the command line, type in, ***ps -ef | grep tca,*** output similar to the following is displayed.

```
{TA}  ps -ef | grep tca [ENTER]
tops 15209 11769  0 17:38:40 pts/1    0:00 grep tca
tops 11781 11780  0 15:12:15 pts/1    1:56 java -Xms24m -Xmx512m -cp
./tca.jar:../lib/xerces.jar:../lib/castor-xml.jar:../
tops 11780 11778  0 15:12:15 pts/1    0:00 /bin/sh ./tca.sh -c admin.xml -p
ClientId=ADMIN
```

13.3 STOPPING TCA

The TCA is a system-level daemon and must be stopped when the system is shut down. This is done automatically thorough the script, ***/etc/rc0.d/K00tca***. To stop the TCA processes the SA needs to log on to the server as the root user. At the command line the SA will type the command, ***/etc/rc0.d/K00tca stop***. The processes will be terminated.

13.4 STARTING/RESTARTING TCA

The daemon script to startup the TCA processes exists in ***/etc/rc2.d/S99tca***. When the server is powered-up, the TCA processes will automatically start. If the TCA processes are not running, the processes need to be manually started. To start the TCA processes the SA needs to log on to the server as the root user. At the command line, the SA will type the command, ***/etc/rc2.d/S99tca start***. The processes will be started.

APPENDIX A
ACRONYMS

Acronyms

The following acronyms are used in this TOPS Administrator's Maintenance Guide for Intel Systems.

-A-	
AGP	Accelerated Graphic Port
ASET	Automated Security Enhancement Tool
AUI	Attachment Unit Interface
-B-	
BDM	BDM International, Incorporated
BIOS	Basic Input Output System
-C-	
CD	Compact Disc
CERT	Computer Emergency Response Team
CMOS	Complimentary Metal Oxide Semiconductor
CPU	Central Processing Unit
-D-	
DAT	Digital Audio Tape
DBA	Database Administrator
DCN	Document Control Number
DCP	Diagnostic Control Panel
DoD	Department of Defense
DOIM	Directorate of Information Management
DTE	Data Terminal Equipment
-G-	
GB	Gigabyte
-I-	
ICP	Incremental Change Package
IDP	Incremental Development Package
-K-	
KB	Kilobyte
-M-	
MB	Megabyte
MHz	Megahertz
MIS	Management Information System
MSRC	MTMC's System Response Center
MTMC	Military Traffic Management Command

-N-

NIC	Network Interface Card
NTS	Non-Temporary Storage

-O-

OPR	Office of Primary Responsibility
OS	Operating System
OSK	Orders_Serial_Key
OTO	One Time Only

-P-

PCI	Peripheral Component Interconnect
PPPO	Personal Property Processing Office
PPPSB	Passenger and Personal Property Systems Branch
PPSO	Personal Property Shipping Office
PS/2	Personal System/2

-Q-

QA	Quality Assurance

-R-

RAM	Random Access Memory
RDBMS	Relational Database Management System

-S-

SCSI	Small Computer System Interface
SDD	Software Design Description
SQL	Standard Query Language
SU	Switch User
SUM	Software User Manual

-T-

TA	TOPS Technical Administrator; TOPS Administrator
TADMIN	TOPS TA System Administration Module
TCA	TOPS Communication Agent
TCP/IP	Transmission Control Protocol/Internet Protocol
TDAS	TOPS Data Archiving Subsystem
TFTP	Trivial File Transfer Program
TOPS	Transportation Operational Personal Property Standard System

APPENDIX B

TOPS FUNCTIONAL TABLE FOR 386 AND 486 PCS WITH 101 ENHANCED KEYBOARDS

NOTE: In several cases two strokes are needed to perform the stroke function, i.e., [ESC X] First ESC , then the X to execute a query.

FUNCTION		**USE**
ESC A,	ADDL HELP	Displays additional information for a field. Rarely used.
ESC T,	CLEAR FIELD	Deletes the contents of a field from the cursor to the end of the field.
F6,	COMMIT	Saves data to permanent storage in the database.
ESC C,	CREATE RECORD	Creates a new record.
ESC D,	DELETE RECORD	Erases entire record, e.g., an additional service.
ESC E,	DISPLAY LAST ERROR	Display last error.
ESC Q,	Enter Query	Alerts system to search for the information about to be entered.
ESC X,	Execute Query	Executes the search for the information you have just typed.
F10,	EXIT	Returns to a menu screen from a data or information screen. Also serves to cancel a query.
ESC F,	FIELD HELP	Displays codes that may be used as responses for that field. These codes are displayed on the message line at the bottom of the screen.
ESC I,	INSERT/REPLACE	Opens field for inserting/replacing data.
ESC L,	LIST VALUES	Displays screen with list of valid codes for applicable field. Move cursor to the desired code and press **[SELECT]**. To exit without selecting a code, press **[EXIT]**.
Enter,	NEXT FIELD	Moves the cursor forward to the next field
F7,	NEXT PAGE	Moves to the next screen.
ESC R,	NEXT RECORDS	Lists the next screen of records in a list. Used with a screen that lists many records.

F8,	PREVIOUS FIELD	Returns the cursor to the previous field.
ESC P,	PREVIOUS PAGE	Returns to the previous screen.
F9,	SELECT	Chooses a record from a list of records.
ESC 1,	SPECIAL 1	At a menu screen, logs the user out. At other screens, it is a variable function . Function it performs is stated on the screen.
ESC 2,	SPECIAL 2	Variable function s. Function it performs is stated on the screen.
ESC K,	SHOW DEFINITIONS	Displays functions.
ESC U,	SHOW PRINT OPTION	Displays one-line menu at bottom of screen for printing screen.

.

APPENDIX C

COMMON "VEDIT" COMMANDS

A.1 Cursor Movement Commands

NOTE: DO not use the cursor s right, left, up, down, return, arrow s.

h	Moves the cursor to the left one character.
j	Moves the cursor down one line.
k	Moves the cursor up one line.
l	Moves the cursor to the right one character.
w	Moves the cursor forward one word.
b	Moves the cursor back one word.
^	Moves the cursor to the beginning of the line the cursor is on.
$	Moves the cursor to the end of the line the cursor is on.
[CTRL] f	Moves the cursor forward one screen 24 lines.
[CTRL] b	Moves the cursor back one screen 24 lines.
[SHIFT] g	Moves the cursor to the last line of the file.
:1 **[ENTER]**	Moves the cursor to the first line of the file.
:# **[ENTER]**	Moves the cursor to the line number specified by number symbol #.

A.2 Set Commands

:set number	Set line numbers during the current editing session.
:set nonumber	Erases line numbers.
:set ic	Set ignore case during the current editing session.

A.3 Character Search Commands

/{string}	The editor searches forward through the file for an exact match of the string.
?{string}	The editor searches backward through the file for an exact match of the string.

n	Continues the search for the specified string in the same direction as the original search.
N	Continues the search for the specified string in the opposite direction from the original search.

A.4 Text Entry Commands

NOTE: Always press **[ESC]** to leave the text entry mode.

i	Inserts characters to the left of the cursor.
I	Inserts characters at the beginning of the line the cursor is on.
a	Appends characters to the right of the cursor.
A	Appends characters to the end of the line the cursor is on.
o	Opens a new line to enter text below the line the cursor is on.
O	Opens a new line to enter text above the line the cursor is on.

A.5 Changing Text Commands

cw	Change text from the cursor to the beginning of the next word, including the space. To change any number of words, put a number in front of the command ex:3cw - changes three words.
C	Change text from the cursor to the end of the line.
r	Replace the character the cursor is on.
R	Replace any number of characters on the line from the cursor position.

A.6 Deleting Text Commands

dw	Delete text from the cursor to the beginning of the next word, including the space. To delete any number of words, put a number in front of the command ex:3dw - deletes three words.
dd	Deletes an entire line of text.

To delete any number of lines, put a number in front of the command ex:9dd - deletes nine lines.

D — Delete text from the cursor to the end of the line.

x — Deletes the character the cursor is on.

To delete any number of characters, put a number in front of the command ex:5x - deletes five characters.

xp — Transposes the character the cursor is on with the character to the right of the cursor.

A.7 Copying and Moving Text Commands

yy — Yanks a copy of the line the cursor is on into the buffer.

To yank any number of lines, put a number in front of the command ex:2yy - yanks two lines.

yw — Yanks a copy of the characters from the cursor to the beginning of the next word into the buffer.

To yank any number of words, put a number in front of the command ex:3yw - yanks three words.

dd — Deletes moves the line the cursor is on into the buffer.

To delete move any number of lines, put a number in front of the command ex:2dd - deletes two line.

dw — Deletes moves the characters from the cursor to the beginning of the next word into the buffer.

To delete move any number of words, put a number in front of the command ex:3dw - deletes three words.

p — If lines have been yanked or deleted, it puts the contents of the buffer on the line below where the cursor is positioned.

If words have been yanked or deleted, it puts the contents of the buffer on the line one character to the right of where the cursor is positioned.

P — If lines have been yanked or deleted, it puts the contents of the buffer on the line above where the cursor is positioned.

If words have been yanked or deleted, it puts the contents of the buffer on the line one character to the left of where the cursor is positioned.

A.8 Miscellaneous Commands

u	Undoes the previous command ONLY.
J	Joins the line the cursor is on with the line below.
[CTRL] l	Clears the screen and redisplays the text.

A.9 Save and Exit Commands

:w	Saves the file, but does not exit the file.
:w {file}	Saves the changes to a new file. The old file is not changed.
:wq	Saves the file and exits to the UNIX command line.
:wq!	If the user is root, forcibly saves the file and exits to the UNIX command line, regardless of the permissions on the file.
:q!	Exits the file without saving the changes.